

MIS 5402 Spring 2017 – Managing Technology & Systems

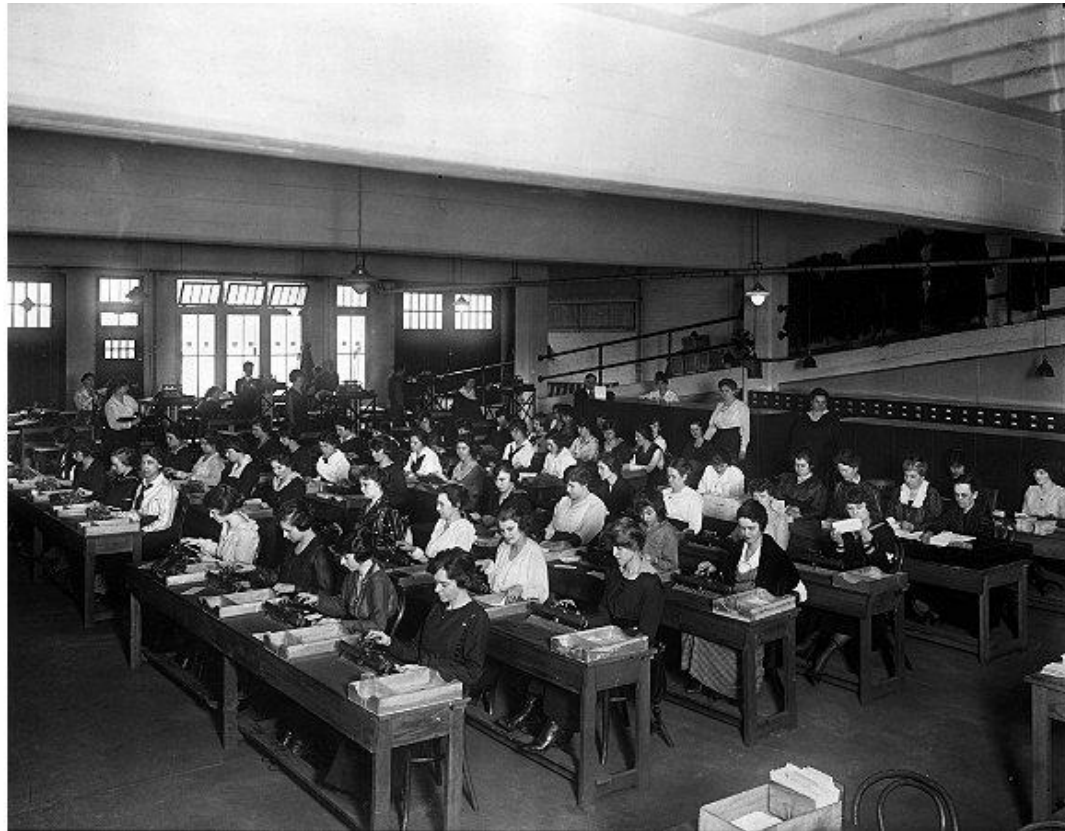
Session 2-3 – IT and Your Career

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Jan. 14th, 2017

Women Mathematicians at World War II

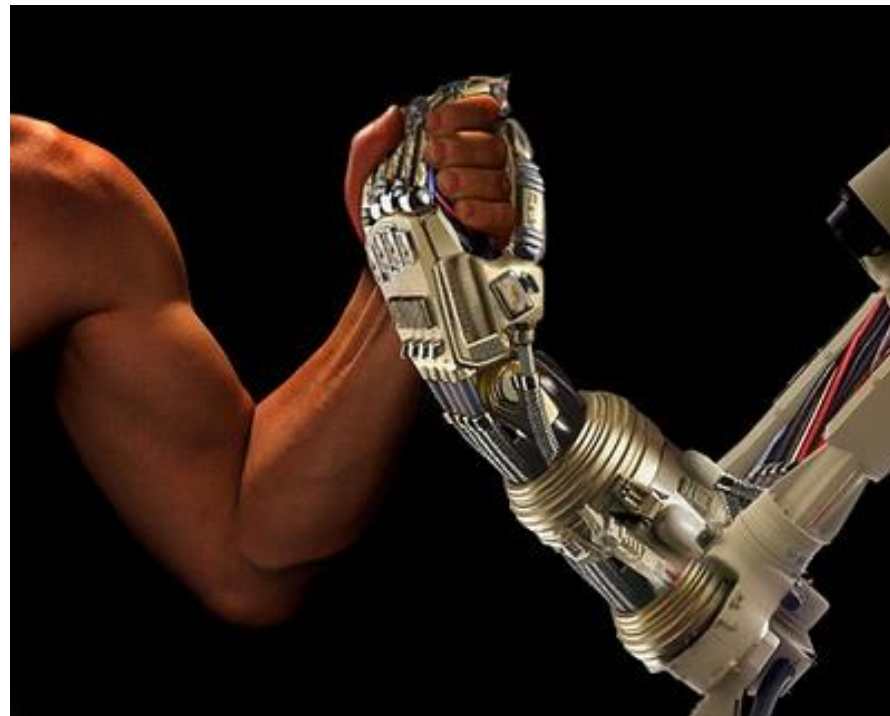


who were called “Computers.”

<http://www.theatlantic.com/technology/archive/2013/10/computing-power-used-to-be-measured-in-kilo-girls/280633/>

In this session, we will discuss

- How to *survive* in the job market and *thrive* in your career by *winning* the battle against the machine?



A Good but Not-So-Good News – Jobless Recovery

September 5, 2009

The New York Times

In Unemployment Report, Signs of a Jobless Recovery

BUSINESS | January 17, 2012

THE WALL STREET JOURNAL.

Man vs. Machine, a Jobless Recovery

U.S. Companies Are Spending to Upgrade Factories but Hiring Lags; Robots Pump Out Sunny Delight

AROUND THE STREET November 6, 2009, 10:19AM EST

Bloomberg Businessweek

October Data Point the Way to a 'Jobless Recovery'

American unemployment

Forgotten men

The jobless recovery, long prophesied, is here

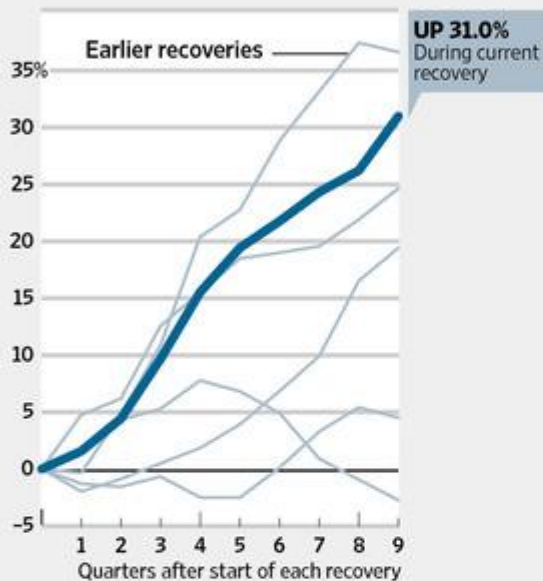


The Economist

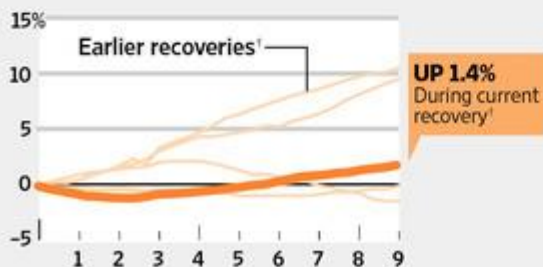
Spending Spree | Businesses splurge on machines, not muscle

Change since each recovery began in ■ spending by business on equipment, software; adjusted for inflation* ■ the number of private-industry jobs

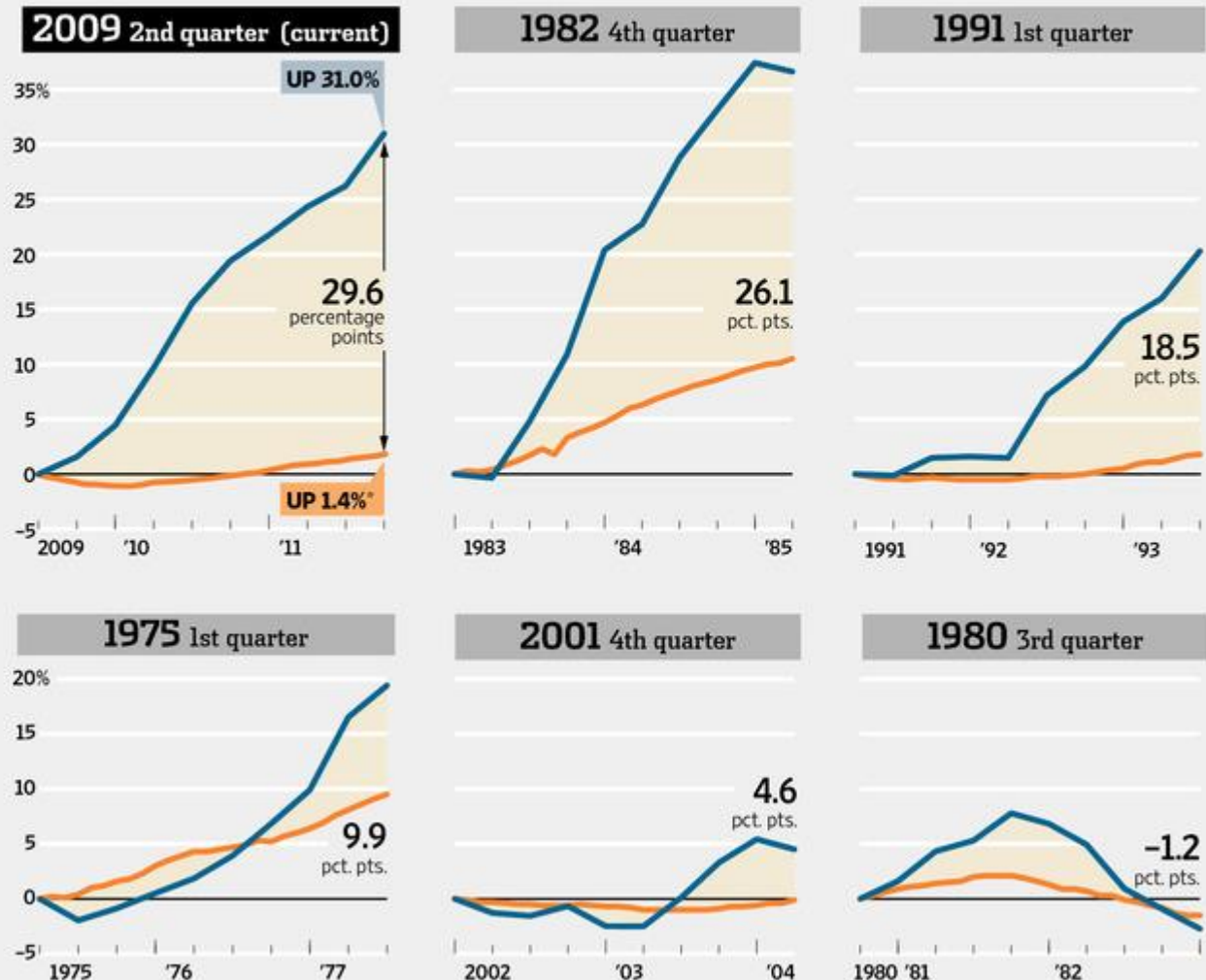
In the current recovery, **business spending on equipment and software** has rebounded faster than usual...



...while **private-industry jobs** have been relatively slow to return...



The **difference** between the speed of the rebound in business investment in equipment and software and that in private-industry hiring is **the widest in decades**, as a result.



[†]The 1991 recovery was so similar to the current one that the lines overlap.

*Through September because latest figure available for nonresidential fixed investment in equipment and software is for the third quarter of 2011. As of December, the number of private-industry jobs had risen 1.8% from the June 2009 level

Note: Start date for each chart is the first full quarter of each recovery as defined by National Bureau of Economic Research.

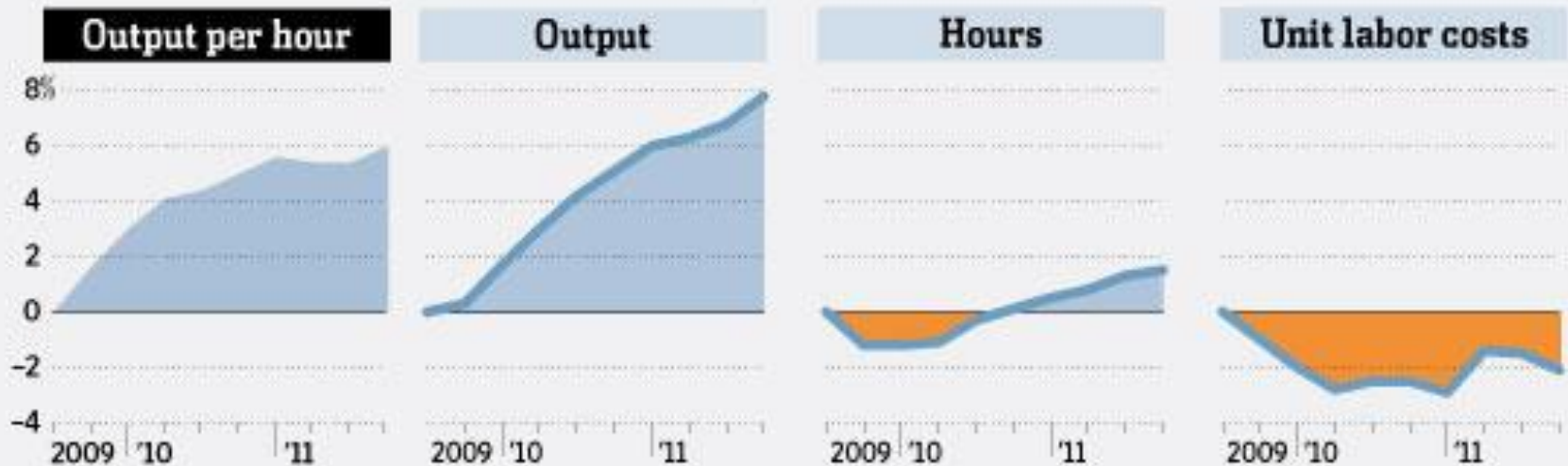
Sources: Commerce Department; Labor Department

What does this mean and *Why?*

More Bang for the Buck

The value of goods and services produced for every hour worked has grown sharply in the nonfarm business sector during this recovery—while the total number of hours worked is up only a bit. The upshot: The ratio of compensation to productivity, or unit labor costs, has been falling.

Change since the recovery's start in:

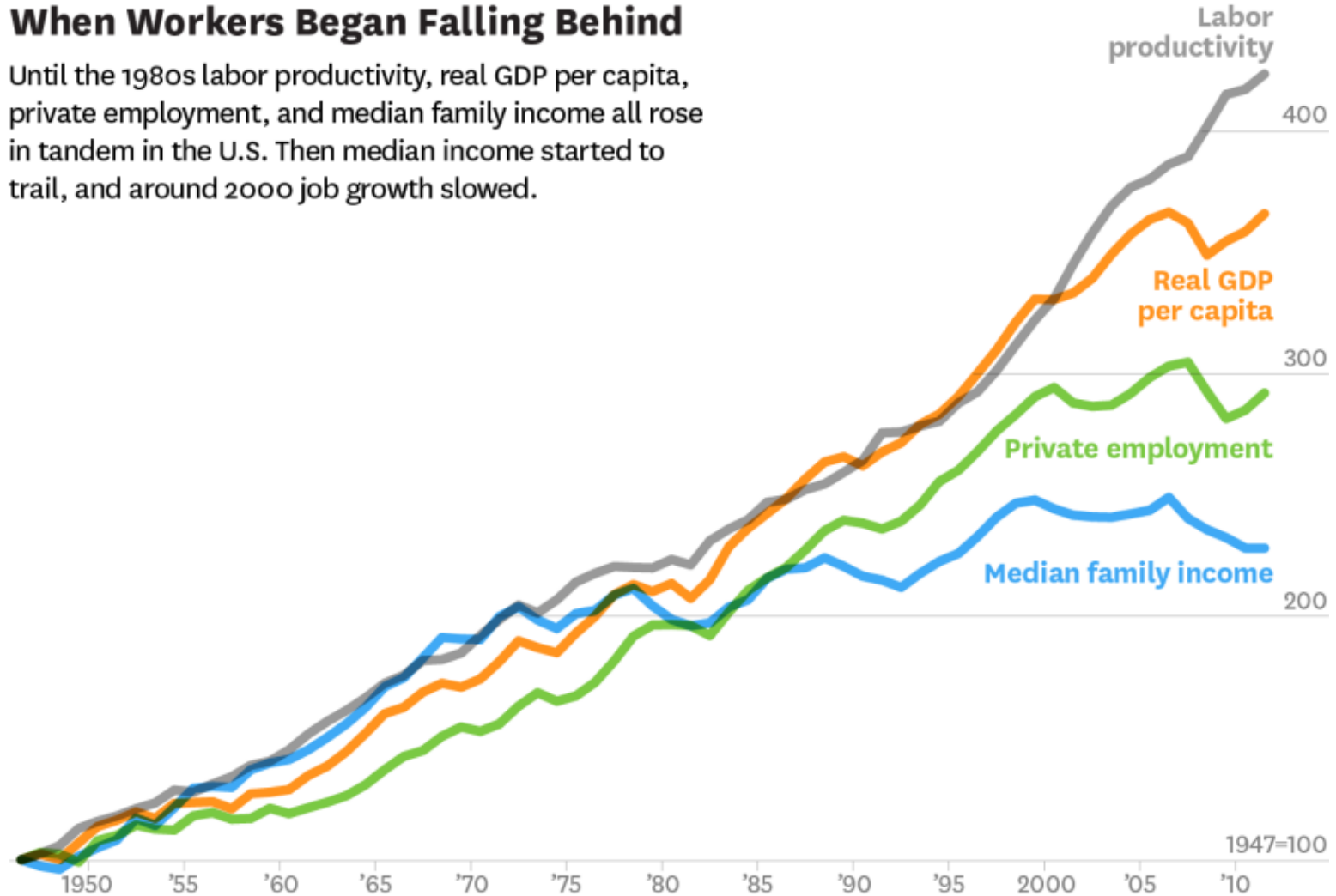


Source: Labor Department

Pat Minczeski/The Wall Street Journal

When Workers Began Falling Behind

Until the 1980s labor productivity, real GDP per capita, private employment, and median family income all rose in tandem in the U.S. Then median income started to trail, and around 2000 job growth slowed.



SOURCE FEDERAL RESERVE BANK OF ST. LOUIS; ERIK BRYNJOLFSSON AND ANDREW MCAFEE
 FROM "THE GREAT DECOUPLING," JUNE 2015

© HBR.ORG

Why Jobless Recovery? – Automation (1/2)



Pennsylvania Turnpike to test out cashless interchanges next year

E-ZPass and license plate-scanner program will be rolled out at Beaver Valley Expressway and Delaware River Bridge

UPDATED 11:51 AM EDT Sep 28, 2015

Text Size: A A A



<http://www.washingtonpost.com/blogs/dr-gridlock/wp/2012/10/31/beltway-express-lanes-to-open-before-thanksgiving-operators-say/>

<http://stormhighway.com/blog/july2109a.shtml>

<http://www.wtae.com/news/pennsylvania-turnpike-to-test-ez-pass-cashless-interchange-at-beaver-valley/35527534>

Why Jobless Recovery? – Automation (2/2)



What if every item in a grocery store has an EZPass (an RFID chip)?

http://www.flickr.com/photos/whole_foods/4495467654/
<http://earthpulse.nationalgeographic.com/earthpulse/focus-us-text>

Why Jobless Recovery? – Outsourcing

The Man Who Makes Your iPhone

Foxconn founder Terry Gou might be regarded as Henry Ford reincarnated if only a dozen of his workers hadn't killed themselves this year. An exclusive look inside a postmodern industrial empire

Inside the iPhone Maker

**Bloomberg
Businessweek**

2 of 19



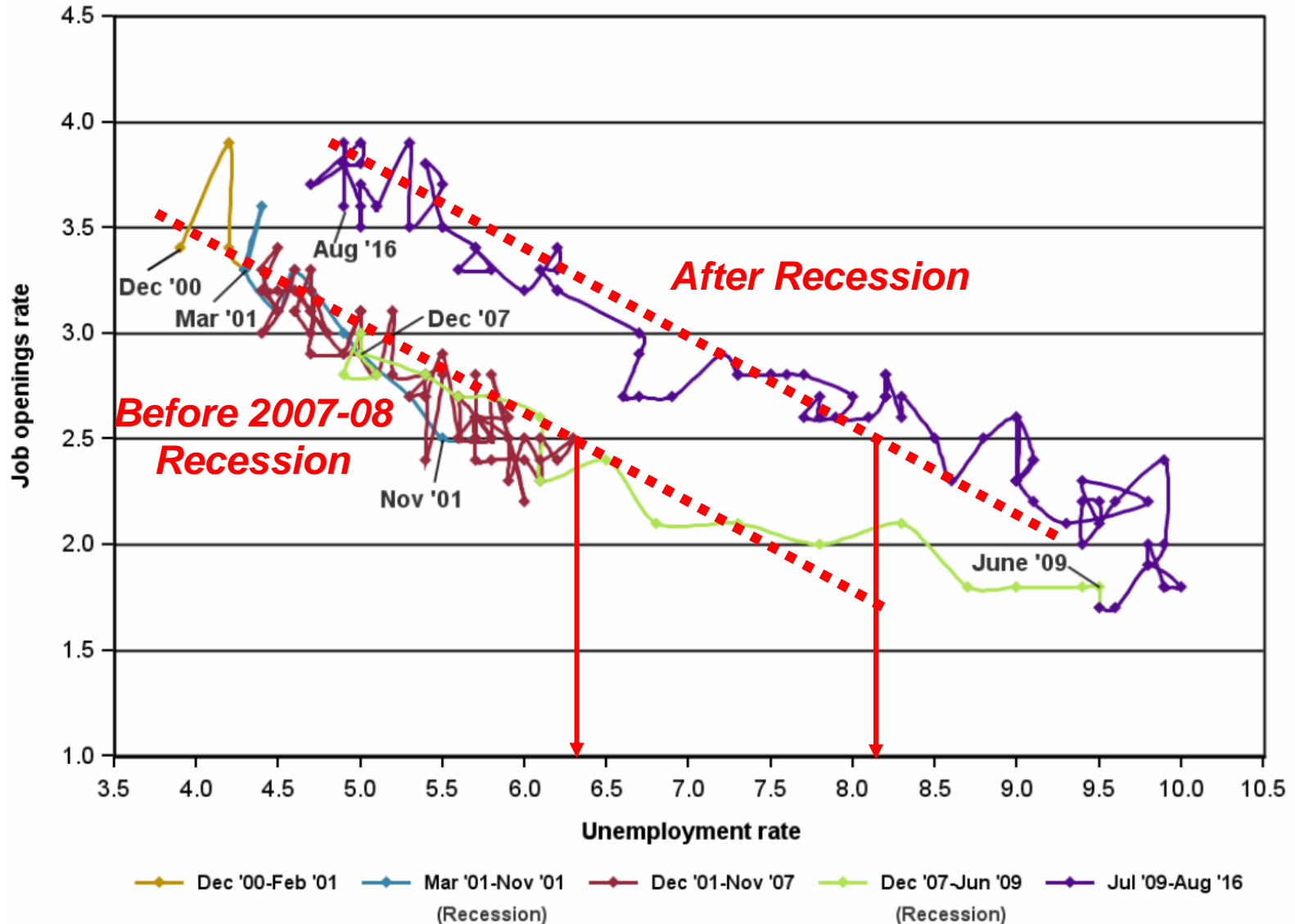
PHOTOGRAPH BY TONY LAW FOR BLOOMBERG BUSINESSWEEK

http://www.businessweek.com/magazine/content/10_38/b4195058423479.htm

http://images.businessweek.com/ss/10/09/0909_foxconn/2.htm

Why Jobless Recovery? – Skill Mismatch (1/3)

Chart 4. The Beveridge Curve (job openings rate vs. unemployment rate)
Seasonally adjusted

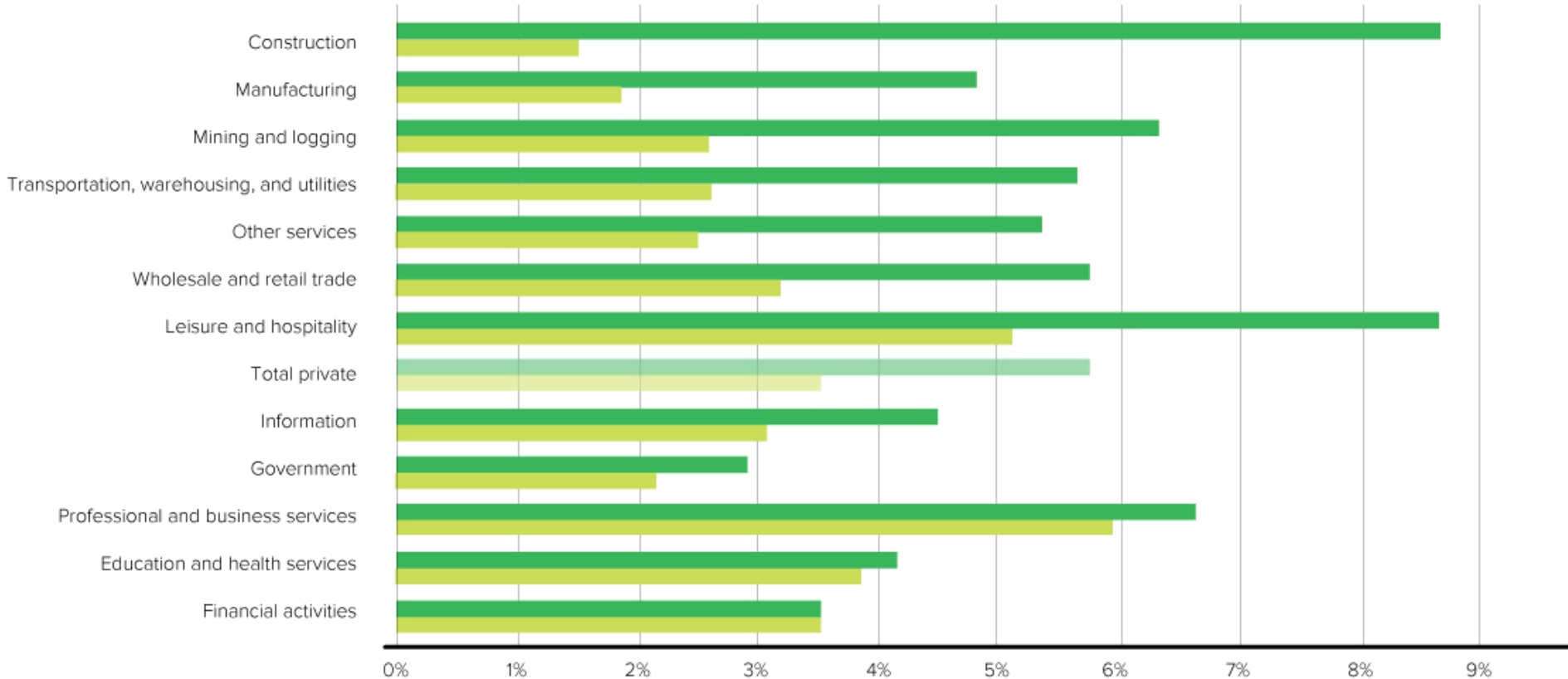


Why Jobless Recovery? – Skill Mismatch (2/3)

JOB OPENINGS RATE AND UNEMPLOYMENT RATE, BY INDUSTRY

Percentage of the labor force, three-month-averages, Aug-Oct 2014

■ Openings ■ Unemployment



Why Jobless Recovery? – Skill Mismatch (3/3)

Most job growth in mature economies involves complex interactions, not routine production or transaction work

New jobs created in the United States, 2001–09
Million employees



Interactions

Exchanges involving complex problem solving, experience, context (e.g., lawyer, nurse)



Transactions

Exchanges that can be scripted, routinized, automated (e.g., bank teller, retail cashier)



Production

Process of converting physical materials into finished goods (e.g., factory worker, farmer)



SOURCE: US Bureau of Labor Statistics; McKinsey Global Institute analysis

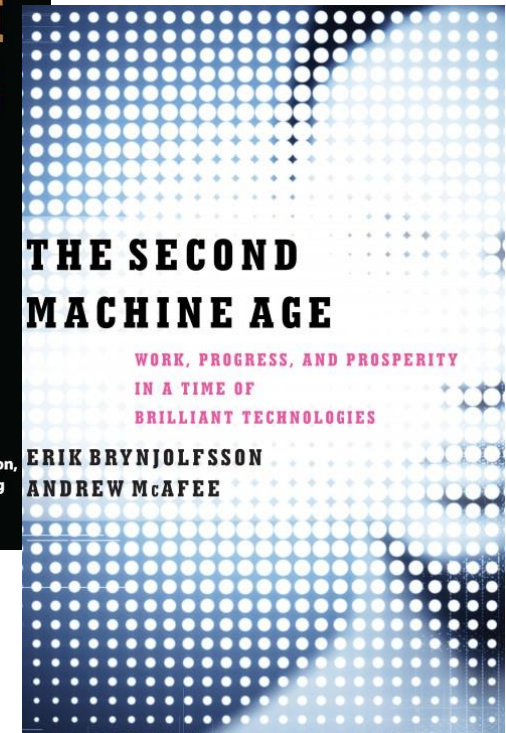
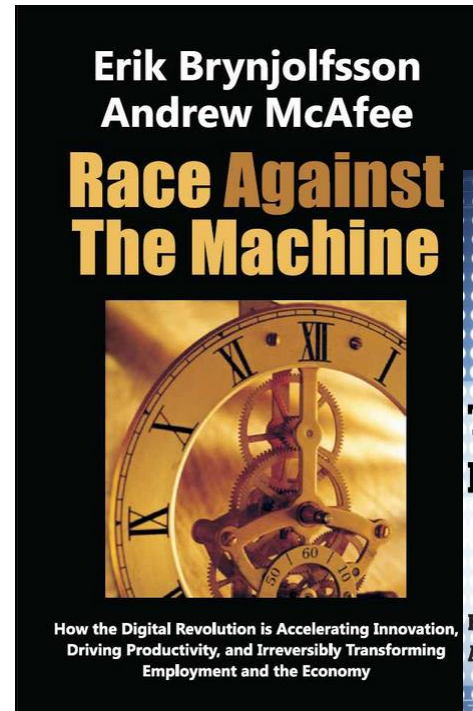
Race Against the Machine

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www.CartoonStock.com



search ID: cwin2663

"You're hired, but remember, you can be replaced by a machine...believe me."



Wall Street Bankers vs. the Machines



BloombergBusinessweek
Markets & Finance

Wall Street banks are replacing people with computers to trade financial instruments that once generated some of their biggest profits. Late last month, UBS (UBS), Switzerland's biggest bank, fired its head of credit-default swap index trading, David Gellers, and replaced him with computer algorithms that trade using mathematical models, according to two people familiar with the matter

Photo illustration by 731; Trading floor: Jin Lee/Bloomberg; Monitors: Oleksiy Maksymenko/Alamy

Swaps

Computers Elbow Swaps Traders Aside

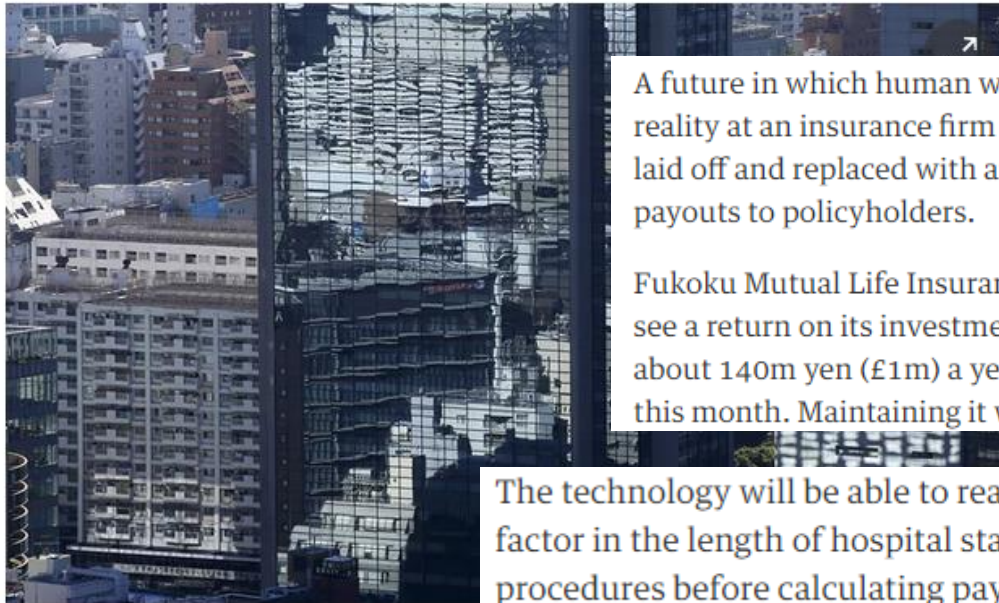
<http://www.businessweek.com/articles/2012-11-15/computers-elbow-swaps-traders-aside>

Insurance Assessors vs. the Machines

Japanese company replaces office workers with artificial intelligence

Is your job safe?

Insurance firm Fukoku Mutual Life Insurance is making 34 employees redundant and replacing them with IBM's Watson Explorer AI



A future in which human workers are replaced by machines is about to become a reality at an insurance firm in Japan, where more than 30 employees are being laid off and replaced with an artificial intelligence system that can calculate payouts to policyholders.

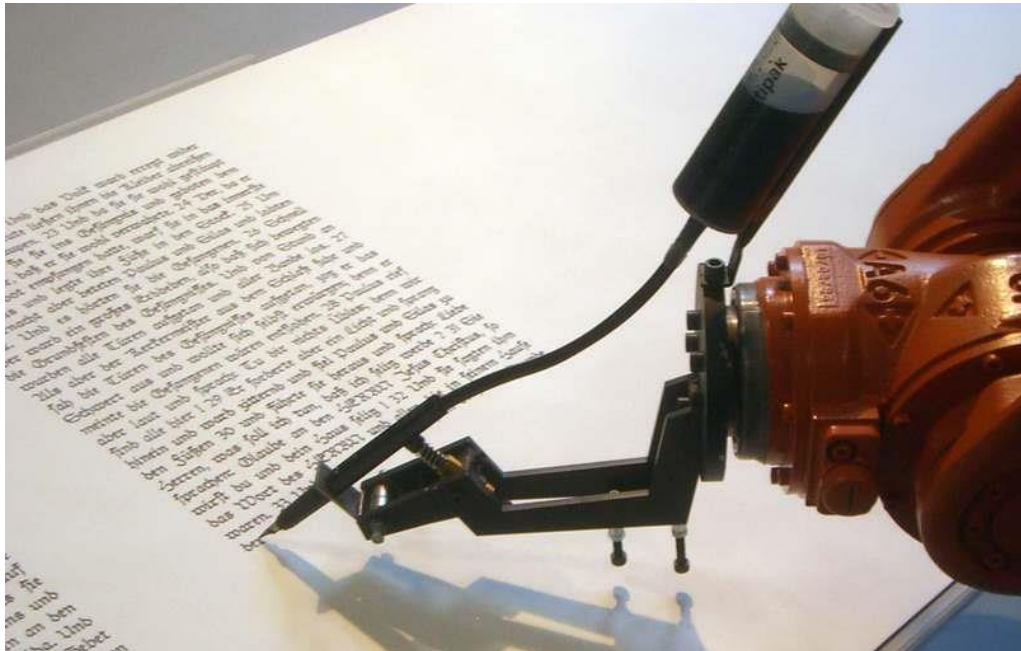
Fukoku Mutual Life Insurance believes it will increase productivity by 30% and see a return on its investment in less than two years. The firm said it would save about 140m yen (£1m) a year after the 200m yen (£1.4m) AI system is installed this month. Maintaining it will cost about 15m yen (£100k) a year.

The technology will be able to read tens of thousands of medical certificates and factor in the length of hospital stays, medical histories and any surgical procedures before calculating payouts, according to the Mainichi Shimbun.

 Fukoku Mutual Life Insurance believes it will increase productivity by 30% Photograph: Toru Hana/REUTERS

<https://www.theguardian.com/technology/2017/jan/05/japanese-company-replaces-office-workers-artificial-intelligence-ai-fukoku-mutual-life-insurance?>

Journalists vs. the Machines



AP News

McCormick beats Street 3Q forecasts

October 02, 2014



SPARKS, Md. (AP) — McCormick & Co. (MCK) on Thursday reported profit of \$122.9 million in its fiscal third quarter.

The Sparks, Maryland-based company said it had profit of 94 cents per share. Earnings, adjusted for non-recurring costs, came to 95 cents per share.

The results topped Wall Street expectations. The average estimate of analysts surveyed by Zacks Investment Research was for earnings of 81 cents per share.

VIDEO: Adobe 3Q Sales Miss Estimates Amid Shift to Cloud

The spices and seasonings company posted revenue of \$1.04 billion in the period, which also topped Street forecasts. Analysts expected \$1.03 billion, according to Zacks.

McCormick expects full-year earnings in the range of \$3.30 to \$3.37 per share.

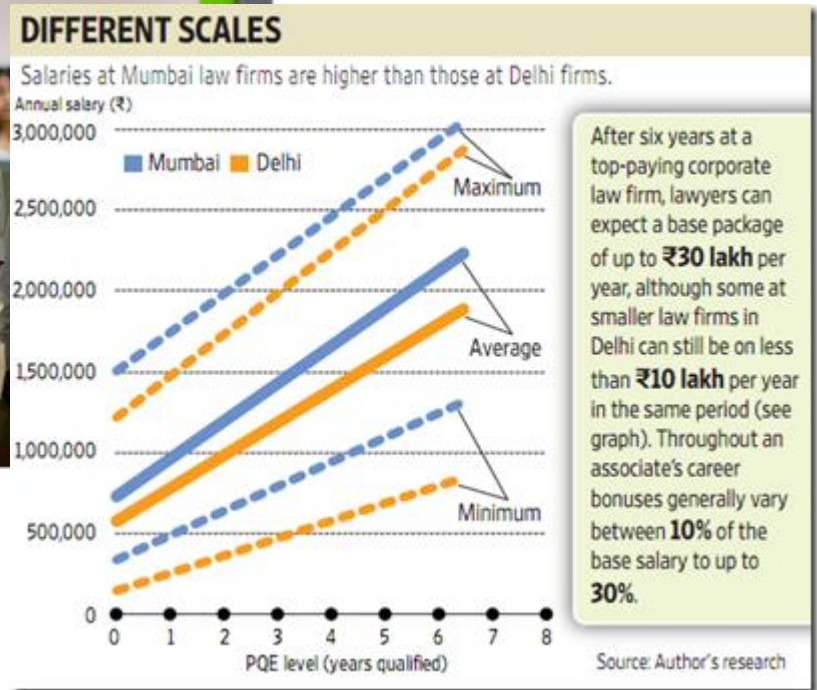
McCormick shares have declined nearly 5 percent since the beginning of the year, while the Standard & Poor's 500 index has increased slightly more than 5 percent. The stock has increased 1 percent in the last 12 months.

VIDEO: H&M 3Q Gross Margin 58.3%; Est. 58.4%

This story was generated automatically by Automated Insights
(<http://automatedinsights.com/ap>) using data from Zacks Investment

<http://www.dailydot.com/technology/robot-journalism-automated-insights-algorithm/>

Lawyers vs. the Machines



http://www.nytimes.com/2010/08/05/business/global/05legal.html?_r=0
<http://www.legallyindia.com/201111252419/Analysis/>

Pilots vs. the Machines

Ryanair's O'Leary Calls for Single-Pilot Commercial Flights

AIN AIR TRANSPORT PERSPECTIVE » SEPTEMBER 10, 2010

by CHARLES ALCOCK

September 10, 2010, 7:26 AM



Where did he go?

Ryanair chief executive Michael O'Leary indicated that he will start to purchase 300 new aircraft but whether the carrier enters the competition for the fleet renewal remains a matter of speculation.
(Photo: Matt Banks)

Ryanair chief executive Michael O'Leary is pushing for single-pilot commercial aircraft operations. In a September 8 interview with the *Financial Times*, O'Leary argued that copilots are essentially redundant in modern airliners because "the computer does most of the flying." The Ireland-based low-cost carrier subsequently confirmed that it initiated a dialogue with aviation authorities regarding the possibility of legalizing single-pilot operations, but in a statement made clear that the proposal remains at an early stage. "No formal approach has been

made, but we are starting the debate so that we can look to reduce costs without compromising safety," Ryanair said in the statement. "Given the sophistication of our aircraft we believe that one pilot flying can operate safely on short routes and reduce fares for all passengers."

<http://www.airfield-ghent.be/documents1/index.html>

<http://www.ainonline.com/aviation-news/ain-air-transport-perspective/2010-09-10/ryanairs-oleary-calls-single-pilot-commercial-flights>

Drivers vs. the Machines



<http://bits.blogs.nytimes.com/2014/05/13/a-trip-in-a-self-driving-car-now-seems-routine/>
<http://www.bbc.com/autos/story/20140926-mercedes-self-driving-truck>

Subway Conductors vs. the Machines

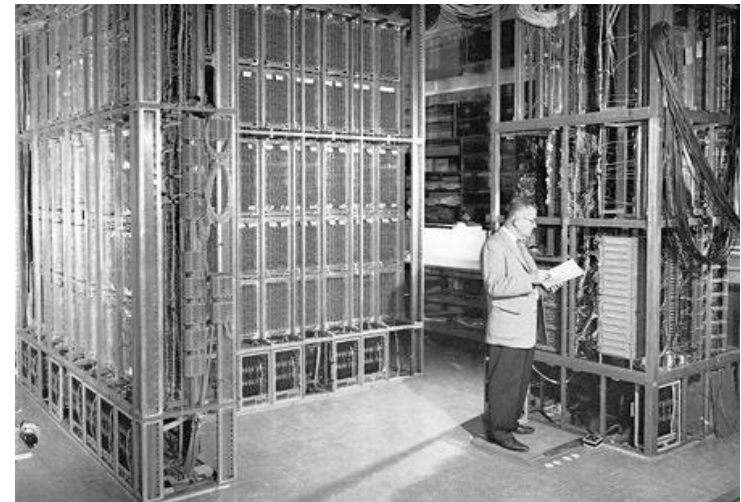


- A new 10.7-mile subway line with no conductor

<http://dragonphoto.tistory.com/535>
<http://m.blog.daum.net/el-tor/8446015>

How long do you want to live?

- How long do you think you'll live?
- Then, when do you have to retire if you want to live up to 100 years?
- What kind of technology breakthroughs will take place *for the next 30 years*?



<http://physics.illinois.edu/history/timelines/1960s.asp>

Let's face it.

- Automation and outsourcing are irreversible trends.
- No occupation is immune to this trend (including college professors)!
- New technologies will continue to emerge for our lifetime and *fundamentally transform* the society and the job market (probably faster and faster).



http://www.bizbash.com/will_these_tech_advances_change_the_future_of_events/new-york/story/25226/

Let's discuss.

- Which kind of occupation will be neither replaced by the machines nor outsourced for the next 30 years?



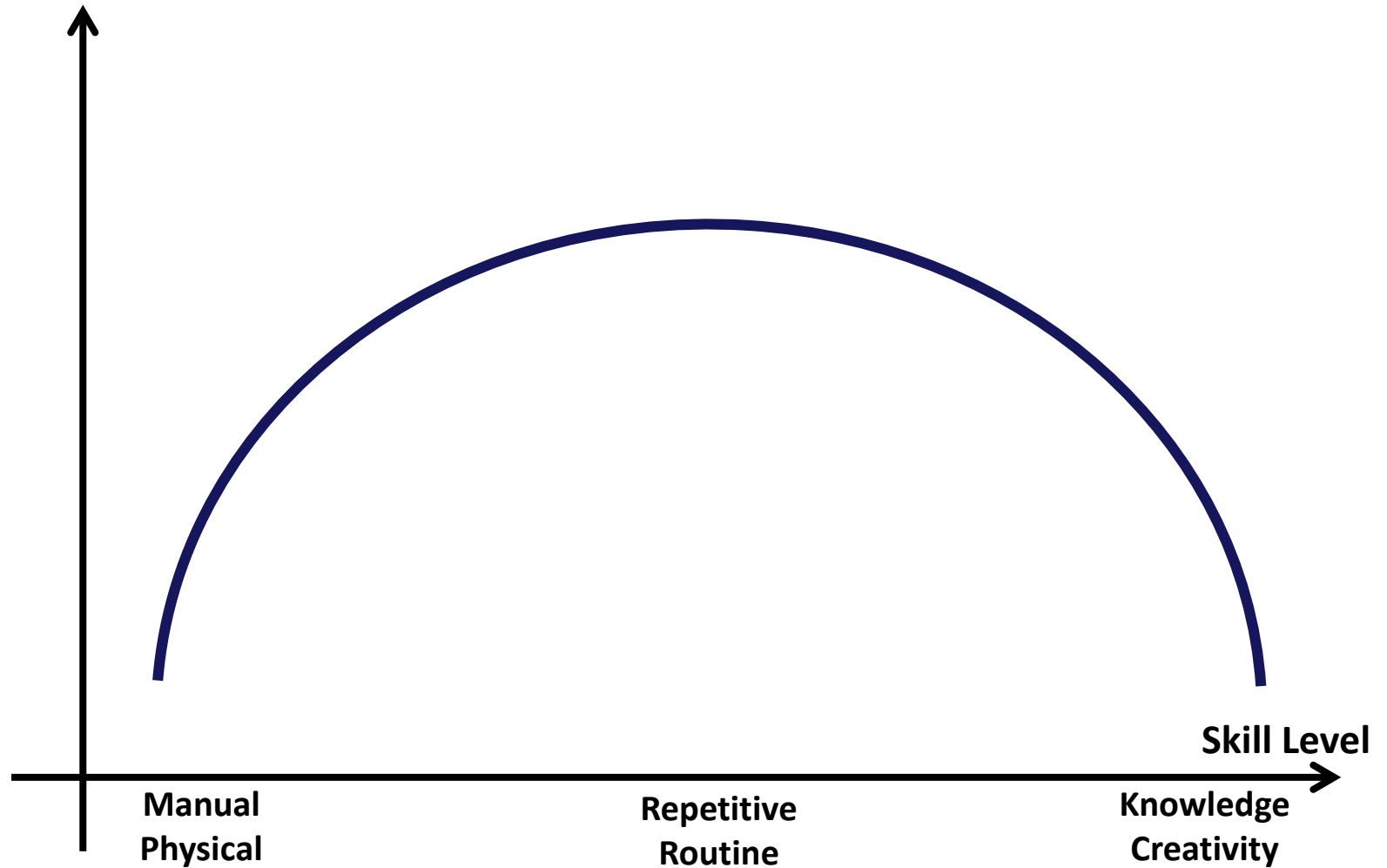
In order not to be replaced, what kind of skills do we need that the machines don't have?

- Creative, innovative, analytic thinking
- Problem-solving skills for complex, unstructured, open-ended, non-routine problems
- Face-to-face, human-touch, communication skills (e.g. negotiation, persuasion, writing)
- Entrepreneurship and leadership
- anything else?



<http://www.kansasbob.com/2011/02/man-vs-machine.html>

Impact of Technology Development (1/2)



Google DeepMind Beats Go Champion!



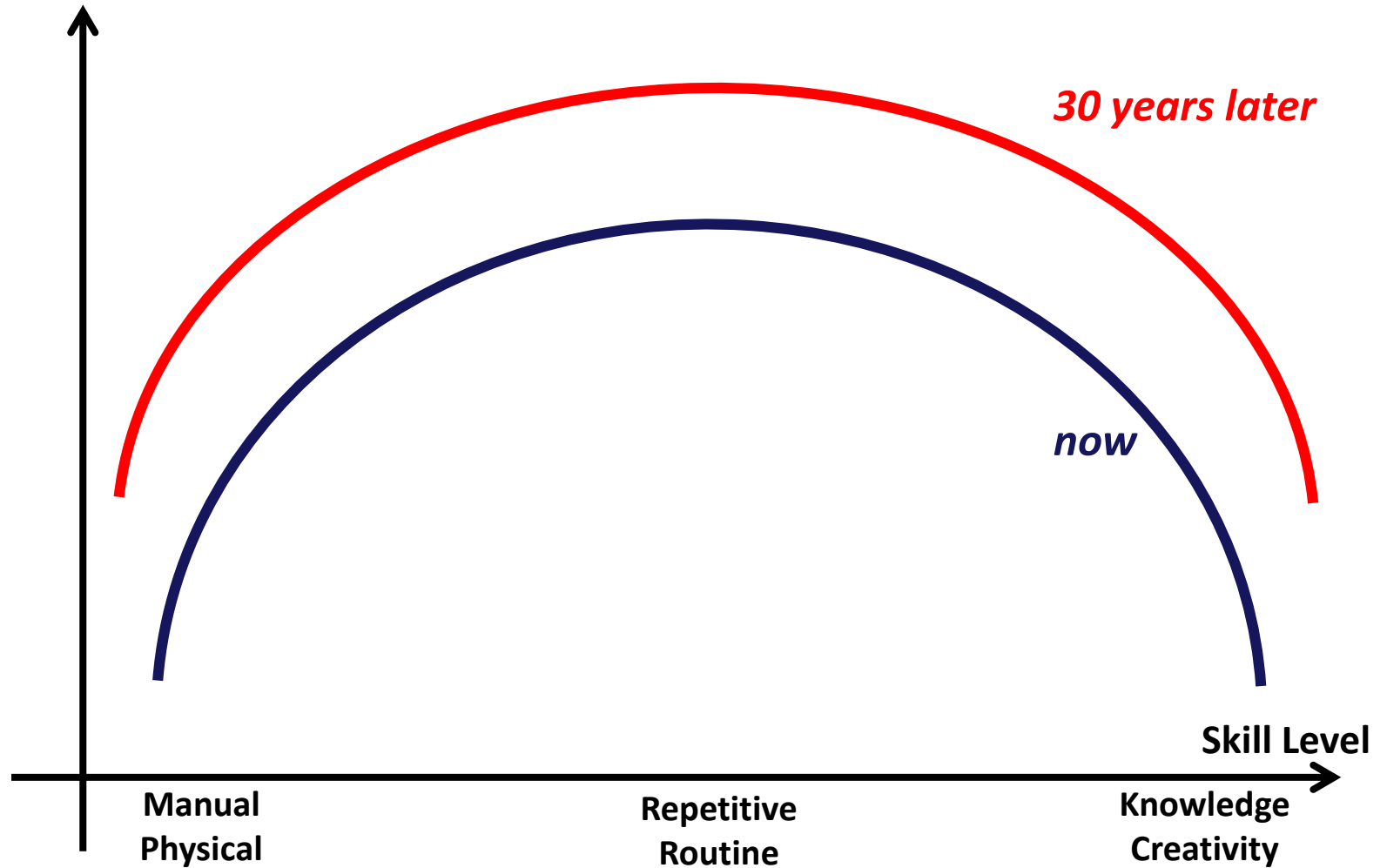
<http://nerdist.com/google-deepmind-beats-legend-lee-sedol-in-game-one-of-five-game-go-series/>

Google DeepDream Draws Arts!



<https://news.artnet.com/market/google-inceptionism-art-sells-big-439352>

Impact of Technology Development (2/2)



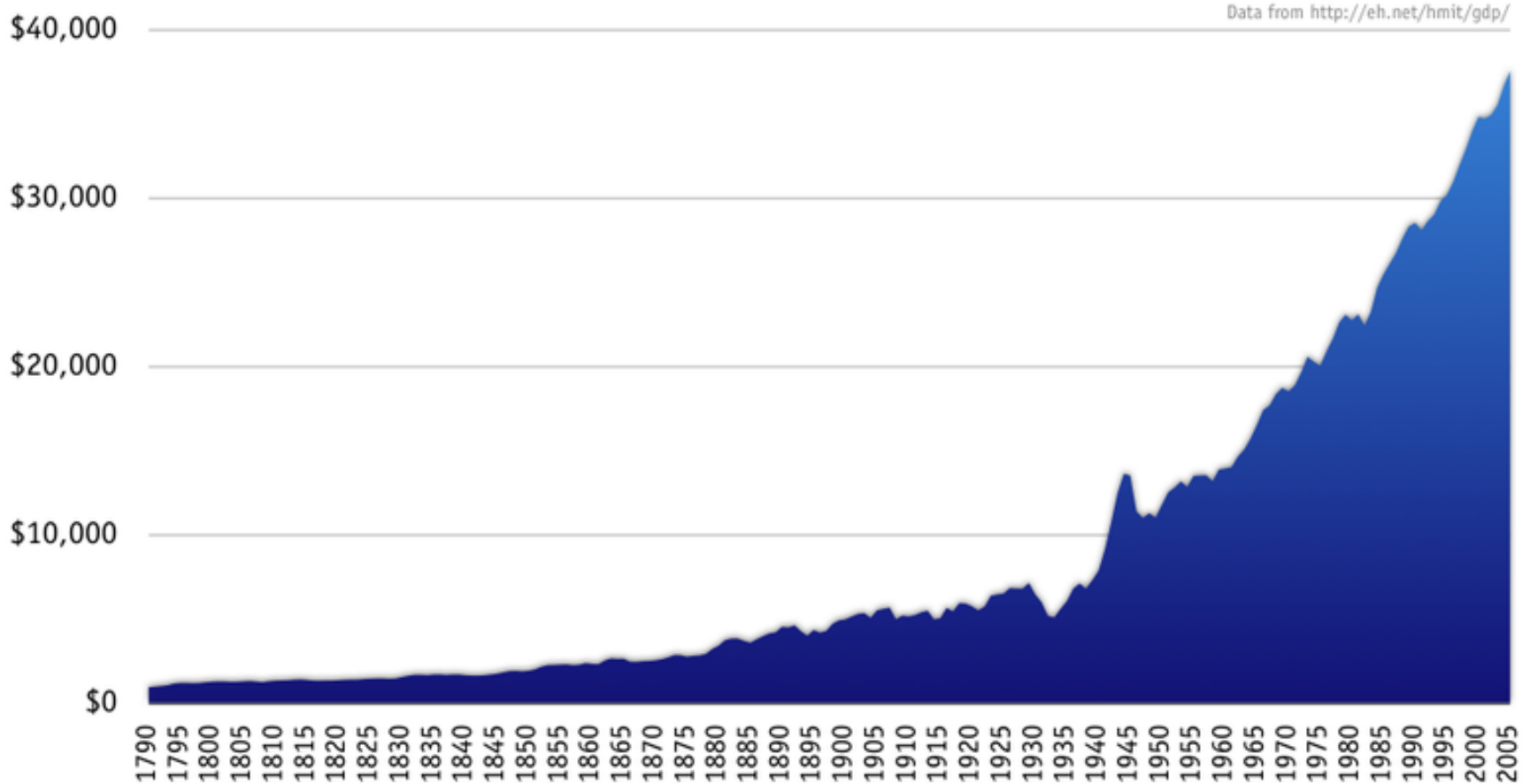
We are **NOT** doomed.

- Advances in technologies are creating new opportunities and increasing demands for different skills.
 - Techs destroy some jobs but create new ones too, with the skills in the previous page.
- Tech developments have historically increased the size of the economies for the last several centuries.
- Survivors in the waves of new technologies will be more thriving than ever before.



[http://en.wikipedia.org/wiki/Survivor_\(U.S._TV_series\)](http://en.wikipedia.org/wiki/Survivor_(U.S._TV_series))

Real GDP Per Capita
(2000 Dollars)



<http://www.onlinedebate.net/forums/showthread.php/9106-John-Tayler-Gatto-s-quot-I-quit-I-think-quot>

What would you say to...

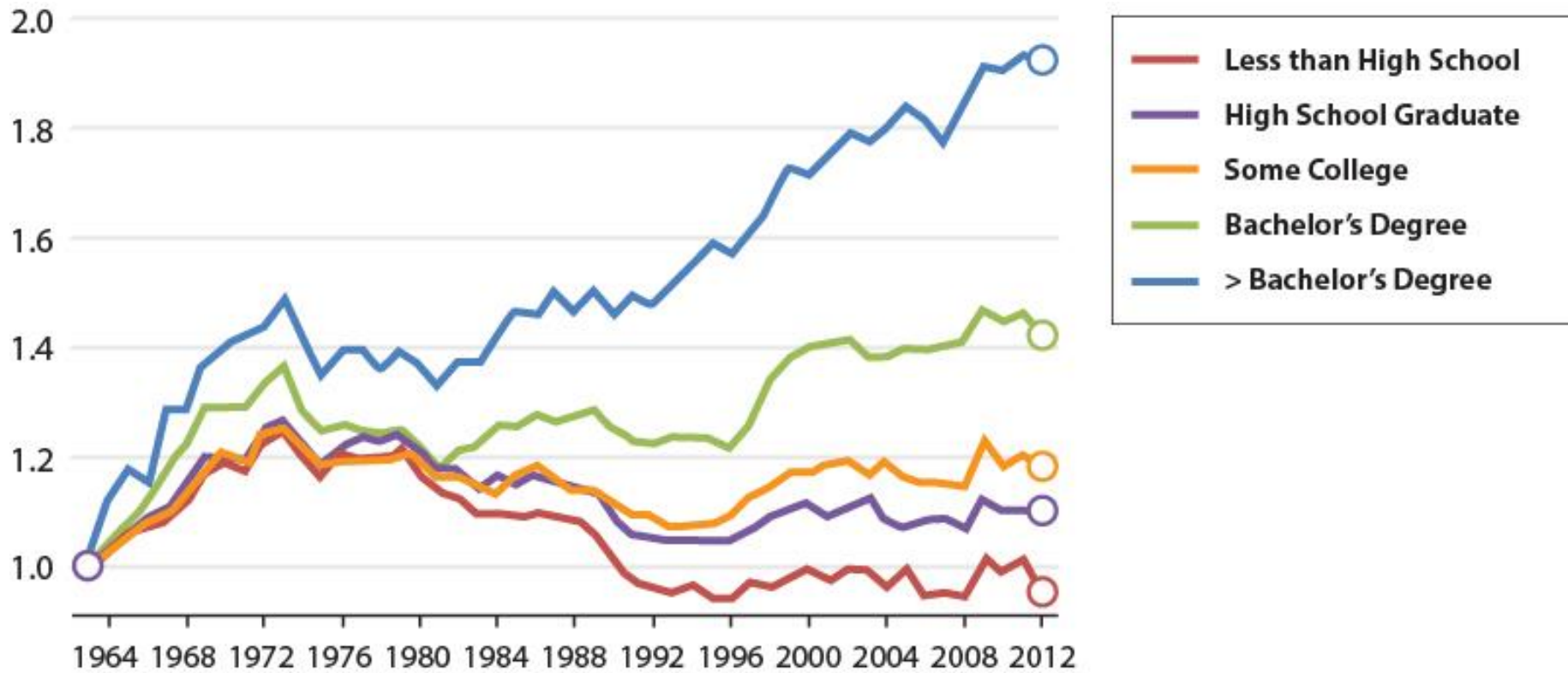
- What would you say to your nephew/niece who is in college or high school?
- What would you say to your children who are in kindergarten or elementary schools?



<https://ed.stanford.edu/news/stanford-gse-research-finds-strong-evidence-mental-health-benefits-delaying-kindergarten>

To make money, go to a graduate school!

Changes in Wages for Full-Time Male U.S. Workers



Why Software Is Eating The World

THE WALL STREET JOURNAL.

Article

Video

Comments (445)



Save



Recommend

18k

By [MARC ANDREESSEN](#)

This week, Hewlett-Packard (where I am on jettisoning its struggling PC business in favor of where it sees better potential for growth. Motorola Mobility's move to a cellphone handset maker Motorola Mobility is also in line with a trend I've seen about the future growth of the American stock market.



In an interview with WSJ's Kevin Delaney, Groupon and LinkedIn investor Marc Andreessen insists that the recent popularity of tech companies does not constitute a bubble. He also stressed that both Apple and Google are undervalued and that "the market doesn't like tech."

Today, the world's largest bookseller, Amazon, is a software company—its core capability is its amazing software engine for selling virtually everything online, no retail stores necessary. On top of that, while Borders was thrashing in the throes of impending bankruptcy, Amazon rearranged its web site to promote its Kindle digital books over physical books for the first time. Now even the books themselves are software.

Today's largest video service by number of subscribers is a software company: Netflix. How Netflix eviscerated Blockbuster is an old story, but now other traditional entertainment providers are facing the same threat. Comcast, Time Warner and others are responding by transforming themselves into software companies with efforts such as TV Everywhere, which liberates content from the physical cable and connects it to smartphones and tablets.

Today's dominant music companies are software companies, too: Apple's iTunes, Spotify and Pandora. Traditional record labels increasingly exist only to provide those software companies with content. Industry revenue from digital channels totaled \$4.6 billion in 2010, growing to 29% of total revenue from 2% in 2004.

Today's fastest growing entertainment companies are videogame makers—again, software—with the industry growing to \$60 billion from \$30 billion five years ago. And the fastest growing major videogame company is Zynga (maker of games including FarmVille), which delivers its games entirely online. Zynga's first-quarter revenues grew to \$235 million this year, more than double revenues from a year earlier. Rovio, maker of Angry Birds, is expected to clear \$100 million in revenue this year (the company was nearly bankrupt when it debuted the popular game on the iPhone in late 2009). Meanwhile, traditional videogame powerhouses like Electronic Arts and Nintendo have seen revenues stagnate and fall.

Forbes / Tech

The Little Black Book of Billionaire Secrets

JUL 29, 2015 @ 09:45 AM 833,901 VIEWS

That 'Useless' Liberal Arts Degree Has Become Tech's Hottest Ticket

Such creativity can't be programmed. Instead, much of it is minted by one of Slack's 180 employees, [Anna Pickard](#), the 38-year-old editorial director. She earned a theater degree from Britain's Manchester Metropolitan University before discovering that she hated the constant snubs of auditions that didn't work out. After winning acclaim for her blogging, videogame writing and cat impersonations, she found her way into tech, where she cooks up zany replies to users who type in "I love you, Slackbot." It's her mission, Pickard explains, "to provide users with extra bits of surprise and delight." The pay is good; the stock options, even better.

What kind of boss hires a thwarted actress for a business-to-business software startup? Stewart Butterfield, Slack's 42-year-old cofounder and CEO, whose estimated double-digit stake in the company could be worth \$300 million or more. He's the proud holder of an undergraduate degree in philosophy from Canada's University of Victoria and a master's degree from Cambridge in philosophy and the history of science.

<http://www.forbes.com/sites/georgeanders/2015/07/29/liberal-arts-degree-tech/>

What would you say to...

- What would you say to your kid's teacher?
- What would you say to the principal of your kid's school or your school district administrator?



<http://www.truity.com/career-profile/high-school-teacher>

What would you say to...

- What would you say to your CEO?
 - What positions in your company would you recommend to automate?
- What would you say to your HR department?
 - What kind of perspective employees would you want them to hire?



<http://www.betternetworker.com/articles/view/personal-development/hr-guidelines-small-businesses>

What would you say to him?

- What would you say to President-Elect Trump?
- or to your senators or your representatives?



https://www.washingtonpost.com/opinions/congratulations-trump-welcome-to-hell/2016/12/20/5dbcb166-c6e7-11e6-bf4b-2c064d32a4bf_story.html

What would you say to yourself?

- Looking at a mirror, what would you say to yourself?
- What is your survival plan for the next 30 years?



<http://www.christianity.com/christian-life/spiritual-growth/preaching-to-ourselves.html>

The illiterate of the 21st century will not be those who cannot read and write, but those who cannot learn, unlearn and relearn.

- Alvin Toffler



GOOD LUCK

to your career and future endeavors!