Leadership in an Age of AI and Robotics

Milo Jones

Twitter: @INVENIAM

What we are doing today

Our Agenda:

- A quick poll about automation and AI
- A look back + where are we now?
- What are centaurs?
- What do centaurs mean for leadership?

Technological Anxiety?

SALON NEWS POLITICS ENTERTAINMENT LIFE BUSINESS

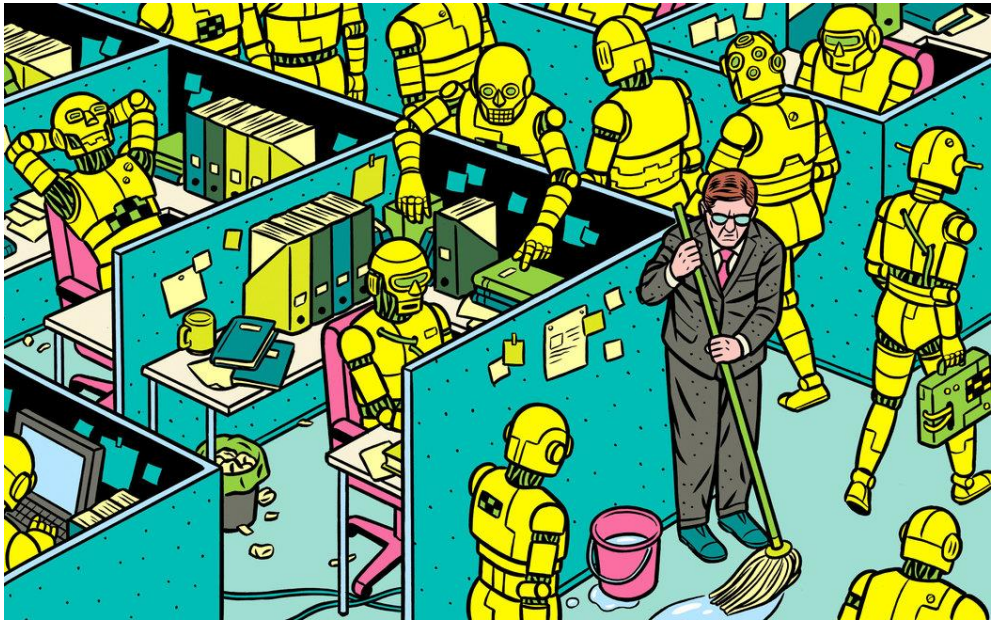
FRIDAY, JAN 17, 2014 06:44 AM CST

Robots are stealing your job: How technology threatens to wipe out the middle class

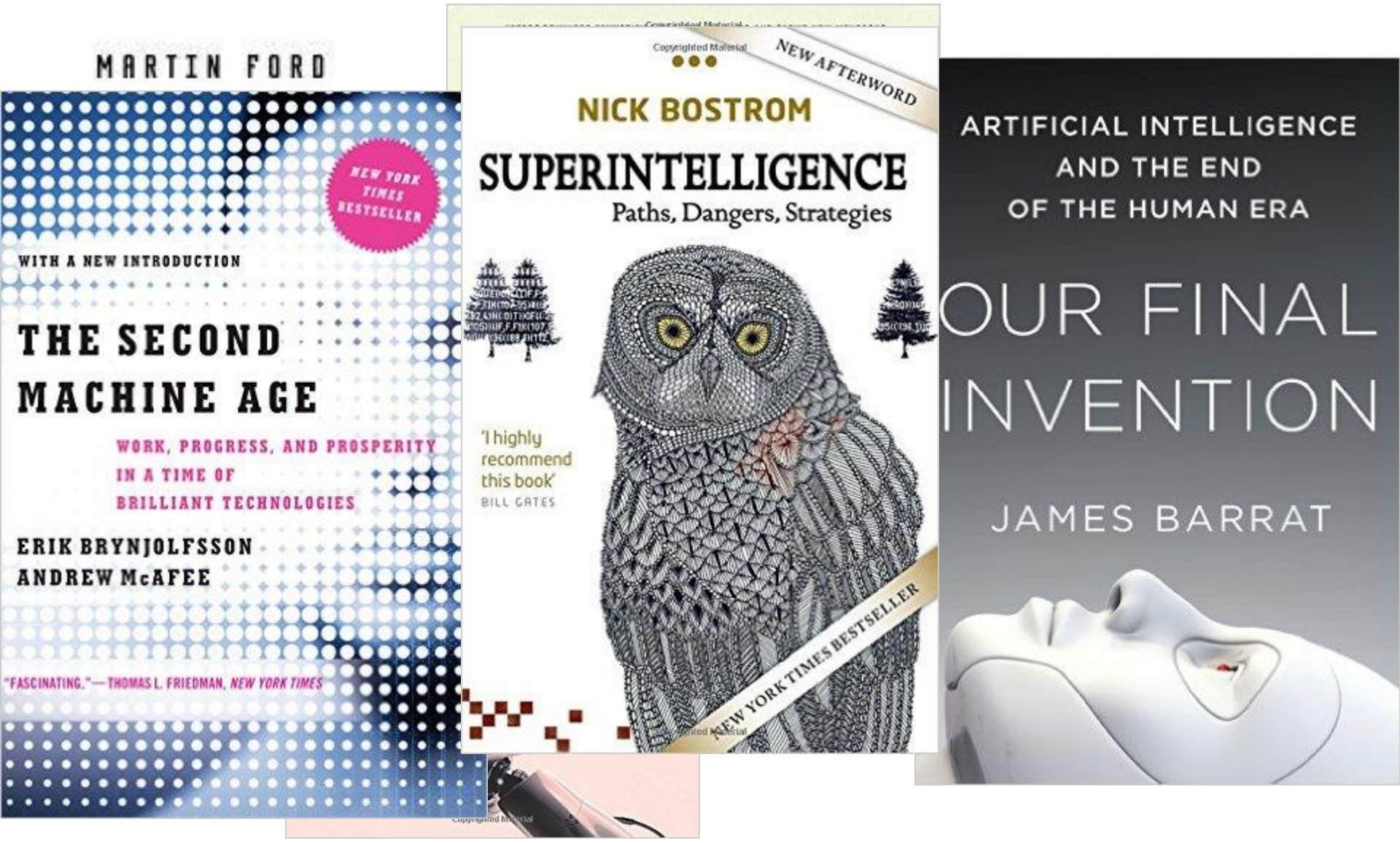
Machines are replacing workers at an alarming pace. Here's how to avoid a middle-class robot apocalypse

ANDREW LEONARD

TOPICS: AUTOMATION, BIG DATA, CAPITALISM, INCOME INEQUALITY, MIDDLE CLASS, ROBOT APOCALYPSE, THE SECOND MACHINE AGE, INNOVATION NEWS, TECHNOLOGY NEWS, BUSINESS NEWS, POLITICS NEWS



Technological Anxiety?



Technological Anxiety?

A Look Back

Technological Anxiety? 16th C.

- In 1589, William Lee invented the stocking frame knitting machine
- He demonstrated it for Queen Elizabeth I, hoping to obtain a patent
- Elizabeth refused, fearing it would create unemployment
- William ended up fleeing England!

Technological Anxiety? 19th C.

- Luddites?
- The Luddites are named after Ned Ludd, who smashed two stocking frames in 1779

- The name evolved into the imaginary “General Ludd” or ”King Ludd”
- Ned Ludd supposedly lived in Sherwood Forest (Just like Robin Hood!)

Sabotage?

Technological Anxiety? 1920s

THE NEW YORK TIMES, SUNDAY, FEBRUARY 26, 1928. XX 3

MARCH OF THE MACHINE MAKES IDLE HANDS

Prevalence of Unemployment With Greatly Increased Industrial Output Points to the Influence of Labor-Saving Devices as an Underlying Cause

By EVANS CLARK.

A FEW days ago the General Motors Corporation reported the largest peace-time earnings ever made by a single concern in the history of America. Three days later Governor Smith made public a report from the New York Industrial Commissioner which called public attention to serious unemployment throughout the State: not since the depression of 1921, it was disclosed, have conditions been as bad.

The people of the United States—in the shadow of a Presidential election—are presented with a social

have gone far to make construction a machine industry instead of a collection of hand trades. One gasoline crane takes the place of ten or twelve laborers. The hod-carrier has disappeared before the invasion of the material hoist. In concrete construction building materials are mixed, like dough, in a machine and literally poured into place without the touch of a human hand. The Ohio figures record these results: with 15 per cent. fewer men employed, contractors put up 11 per cent. more square feet of finished buildings last year than in 1923.

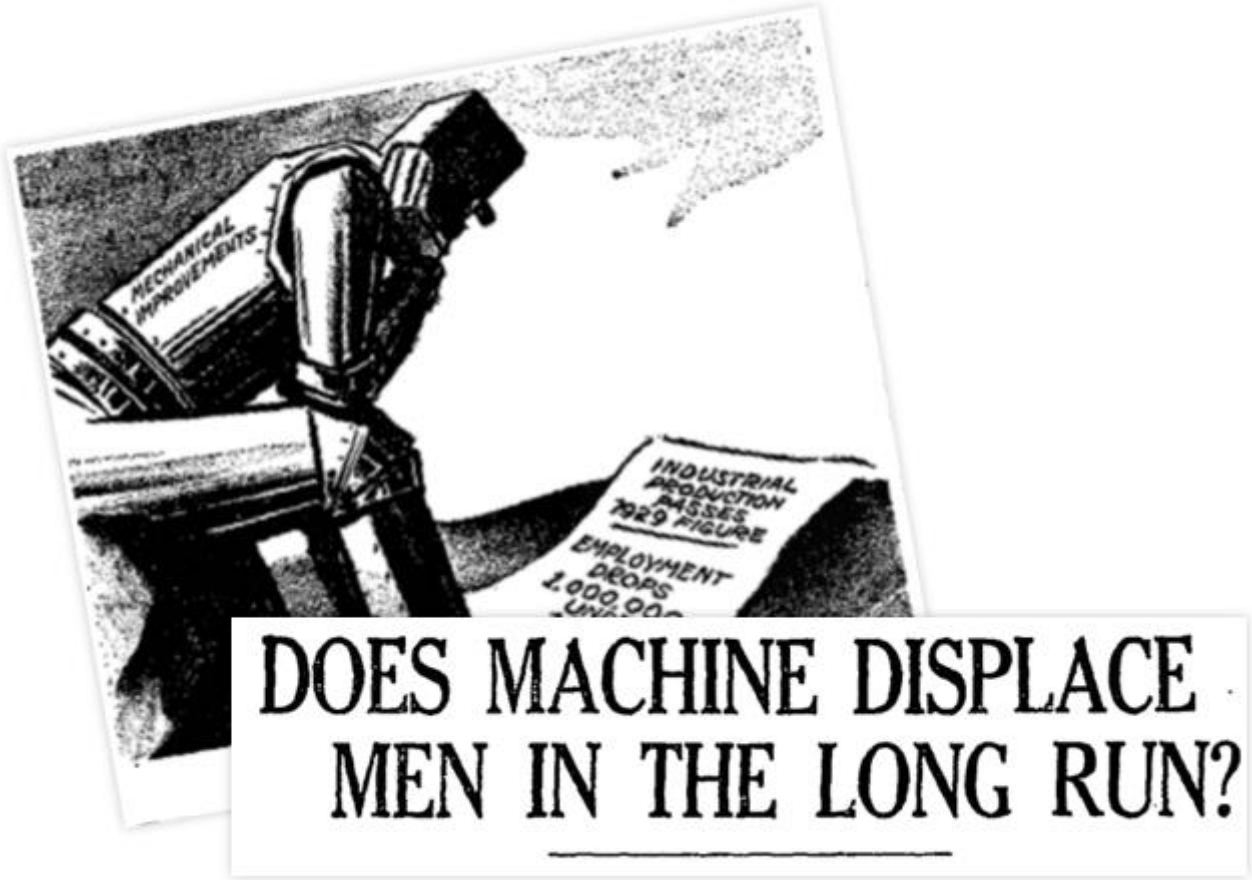
Coal Mined by Machines.

Technological Anxiety? 1930s

- John Maynard Keynes coined a new phrase “We are being afflicted with a new disease…”
- “Technological unemployment.”


World Ills Laid to Machine
By Einstein in Berlin Speech

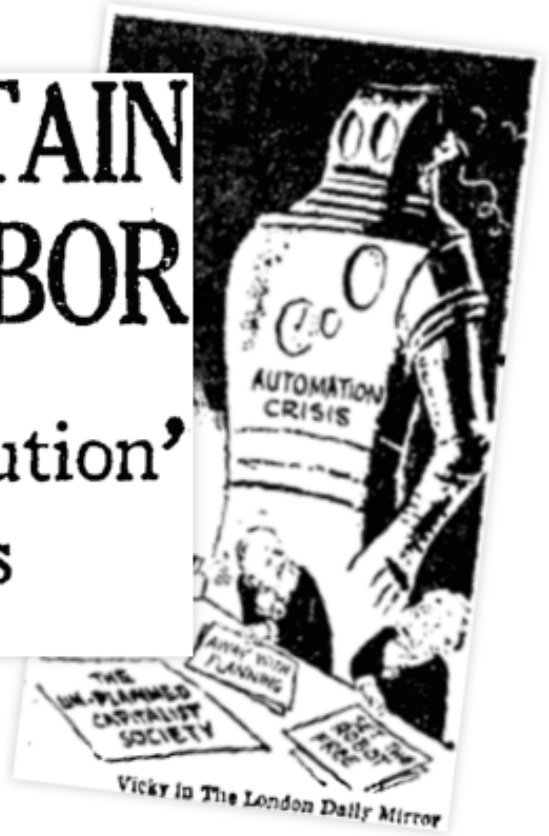
Technological Anxiety? 1940s



Technological Anxiety? 1950s

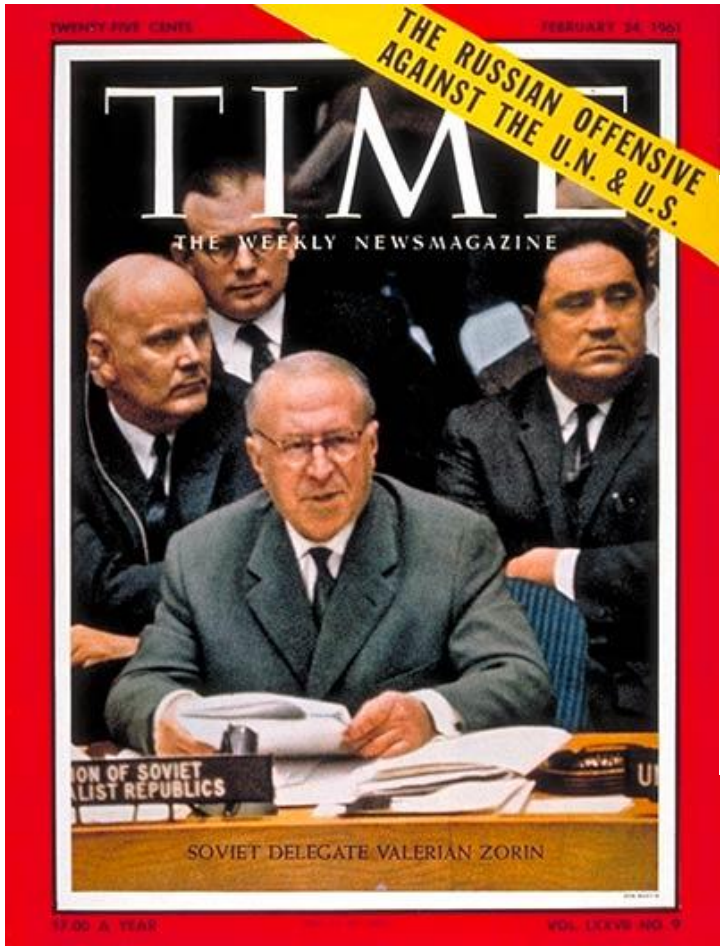
AUTOMATION IN BRITAIN STIRS UNREST IN LABOR

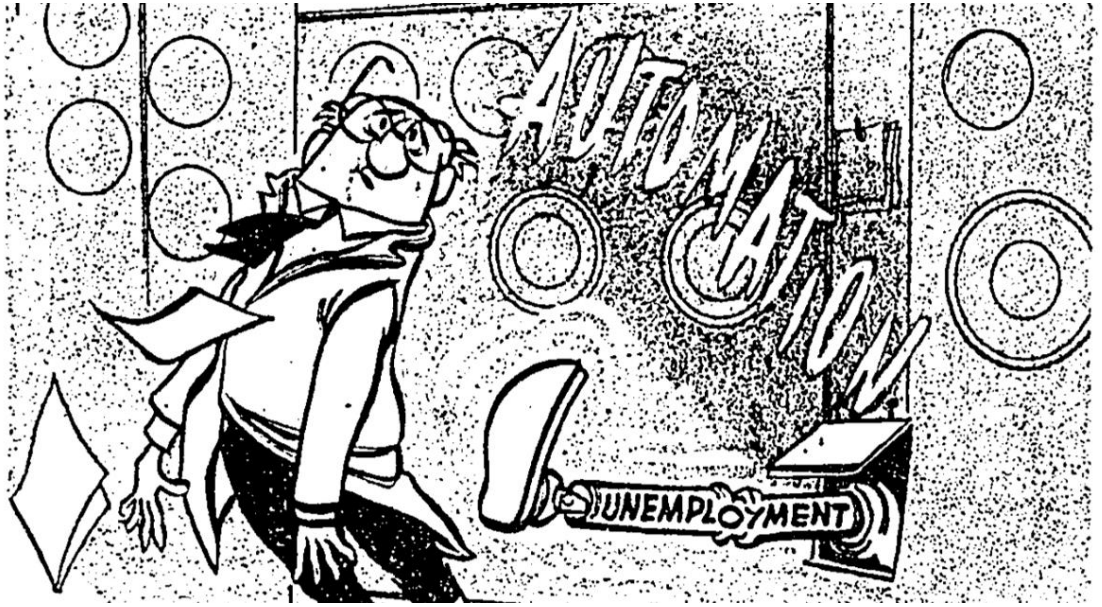
Workers See 'Robot Revolution' Depriving Them of Jobs



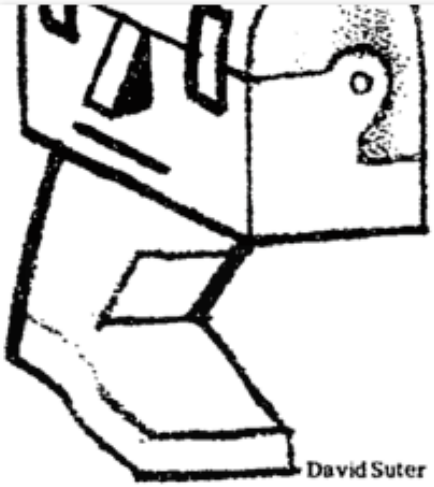
Technological Anxiety? 1960s

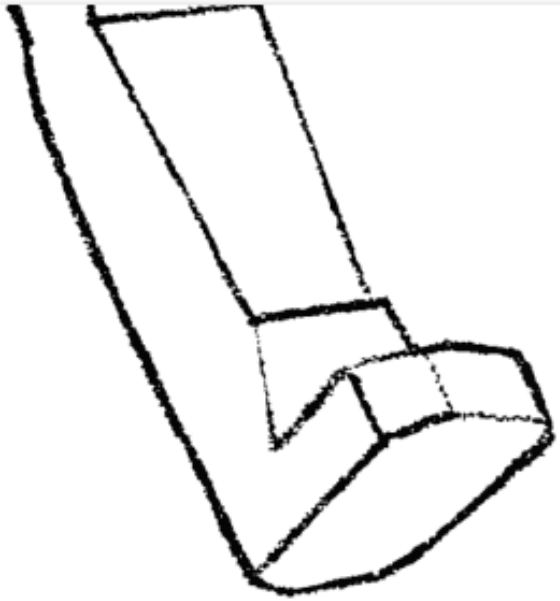
- 1961 - “The Automation Jobless”





Technological Anxiety? 1970s & 80s

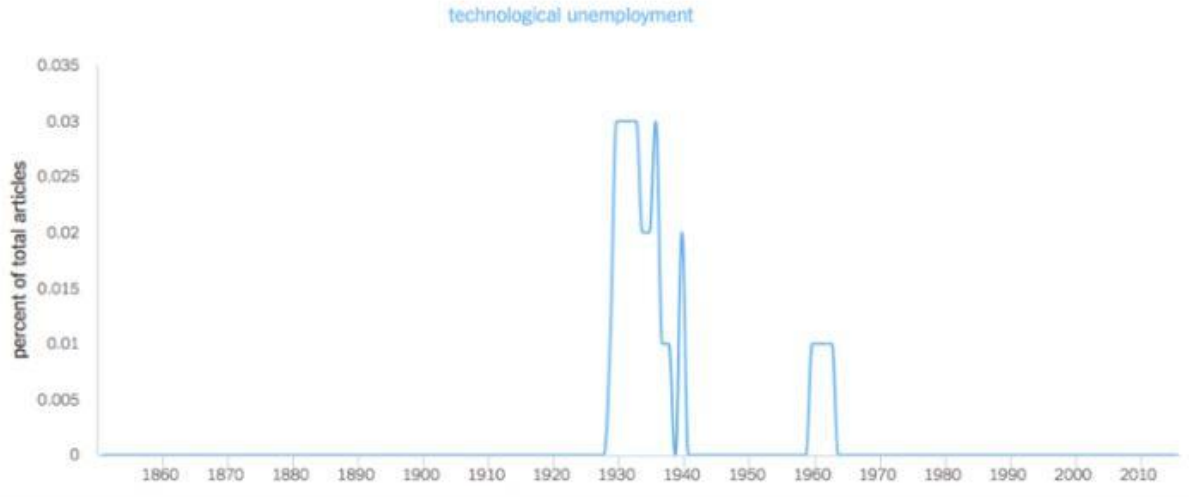




DETROIT — Technological innovation is widely billed as a miracle cure for the United States' economic doldrums. Its aftereffects, however, may be far from benign. The introduction of revolutionary new technologies such as robots — versatile computer-controlled mechanical arms — raise two painful possibilities: sizeable losses of jobs and a deteriorated quality of working life.

A Robot Is After Your Job

Cycles?



The Big Question…

Is this time different?

Lump of Labor Fallacy

Lump of Labor Fallacy

"Economics is about the long run…

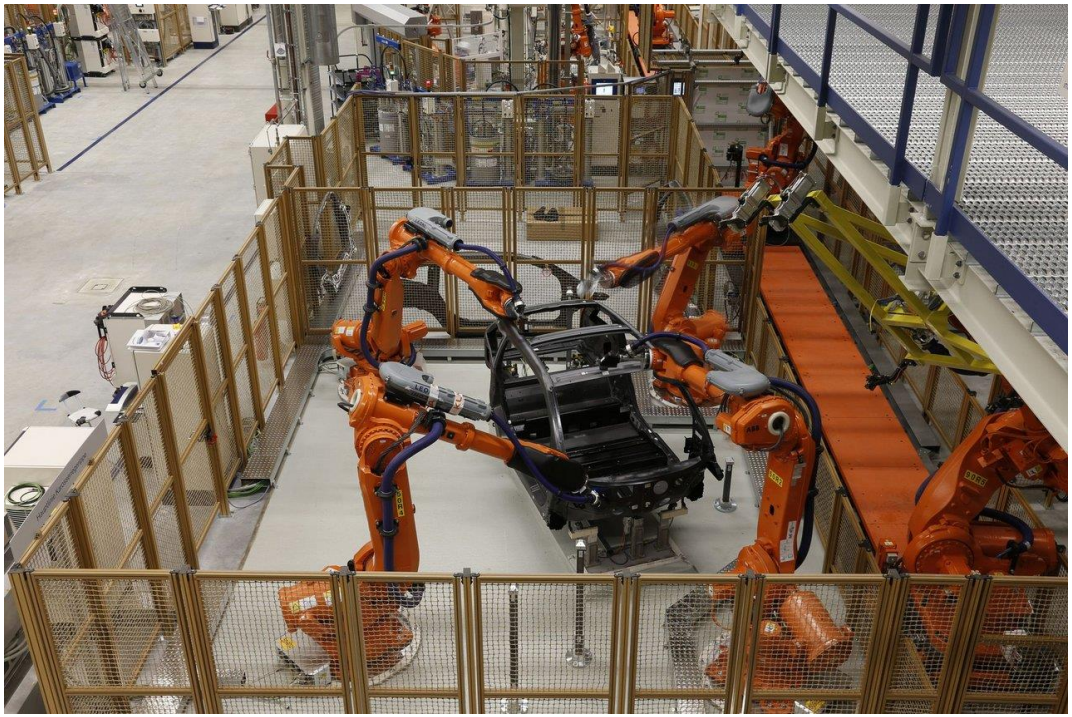
?

"but in the long run we are all dead." - Keynes

Is this time different?

- Maybe the pace of change has accelerated?
- Maybe the scope of technological change is increasing?
- Maybe the benefits of technological change are more highly concentrated than in the past?

Is this time different?



Cobots; Trainable; Open Source

Innovation ecosystems forming

SEWBO

CAREERS PRESS KIT

Sewbo, Inc. is pleased to announce that it has used an industrial robot to sew together a T-shirt, achieving the long-sought goal of automation for garment production.

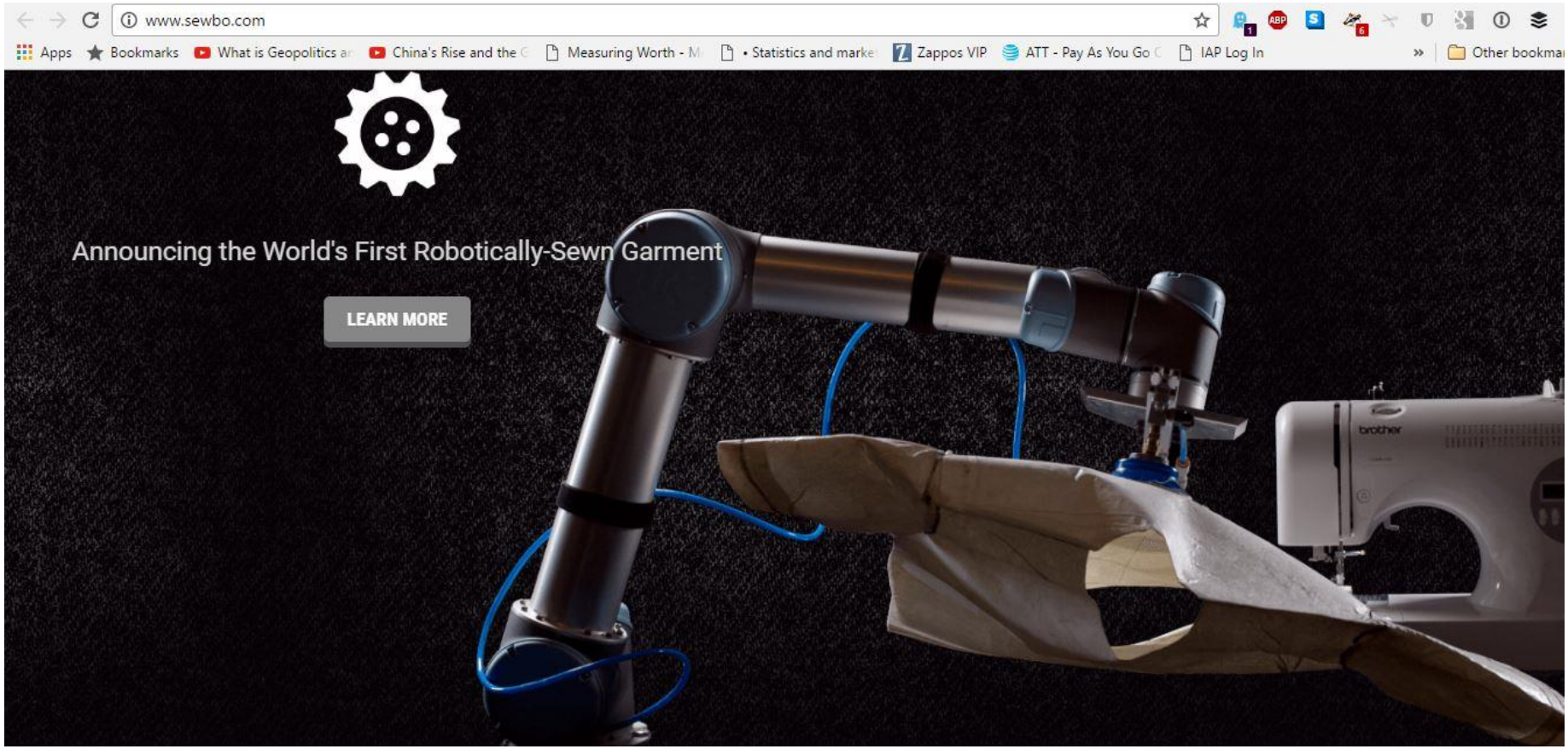
Sewbo's technology will allow manufacturers to create higher-quality clothing at lower costs. It will shorten supply chains and lessen the long lead times that hamper the fashion and apparel industries, helping to reduce the complexity of today's intricate global supply network.

How it Works

Despite widespread use in other industries, automation has made little progress in clothing manufacturing due to the difficulties robots face when trying to manipulate limp, flexible fabrics.

Sewbo avoids these hurdles by temporarily stiffening fabrics, allowing off-the-shelf industrial robots to easily build garments from rigid cloth, just as if they were working with sheet metal. The fabric

Innovation ecosystems forming



“Uncaged” and free to roam?

“Uncaged” and free to roam?

DMV dmvnv.com

Department of Motor Vehicles

Official Website of the State of Nevada

ADA Americans with Disabilities Act

Home | About Us | Driver License | Registration | License Plates | Business | Forms | Offices

Autonomous Vehicles

On this Page

- Application for Testing
- Laws & Regulations
- News & Videos

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The Nevada Legislature and the Department of Motor Vehicles have enacted legislation and regulations to enable the testing and operation of autonomous vehicles in the Silver State.

Currently, the DMV is accepting applications for testing only. Autonomous vehicles are not available to the general public.

Application for Testing

Top ↑

Manufacturers, software developers and others interested in testing their vehicles in Nevada must submit an application to the Department along with proof that one or more of your autonomous vehicles have been driven for a combined minimum of at least 10,000 miles, a complete description of your autonomous technology, a detailed safety plan, and your plan for hiring and training your test drivers. Additional requirements and information are detailed in the application packet.

As of August 8, 2016, the Department made a policy decision to remove the formal drive demonstration requirement prior to issuing an autonomous test license. The Department has made changes to the application packet (OBL 326) to ensure the company provides a sufficient overview of the technology's capabilities and limitations. Due to the changes to the application packet, the drive demonstration requirement has been removed. However, the Department will hold the right to request a formal drive demonstration if the technology described in the application is unique or unusual, and would require a demonstration to ensure the vehicle can safety operate on our highways.

Autonomous Vehicle Business License Application Packet (OBL 326)

Please mail the completed application to:

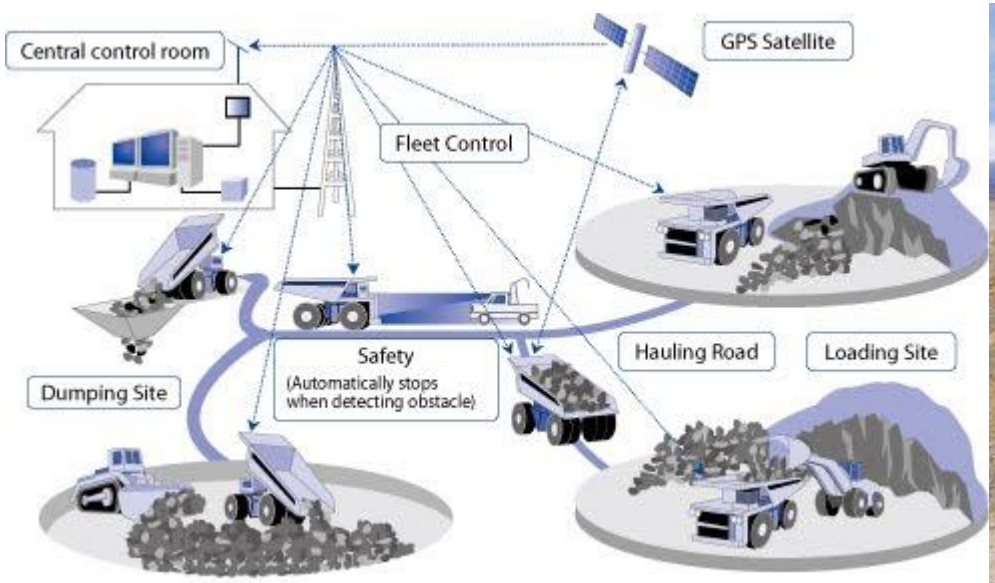
Nevada Department of Motor Vehicles
Directors Office
555 Wright Way
Carson City, NV 89711-0900

For questions regarding the autonomous application packet please contact:

Natalie Vargas-Murray, Manager, Occupational Business Licensing
(775) 684-4672

Once an application is approved, the DMV will issue a testing license along with sets of red license plates for the vehicles.

“Uncaged” and free to roam?



“Uncaged” and free to roam?

Is this time different?

- Business process automation is spreading

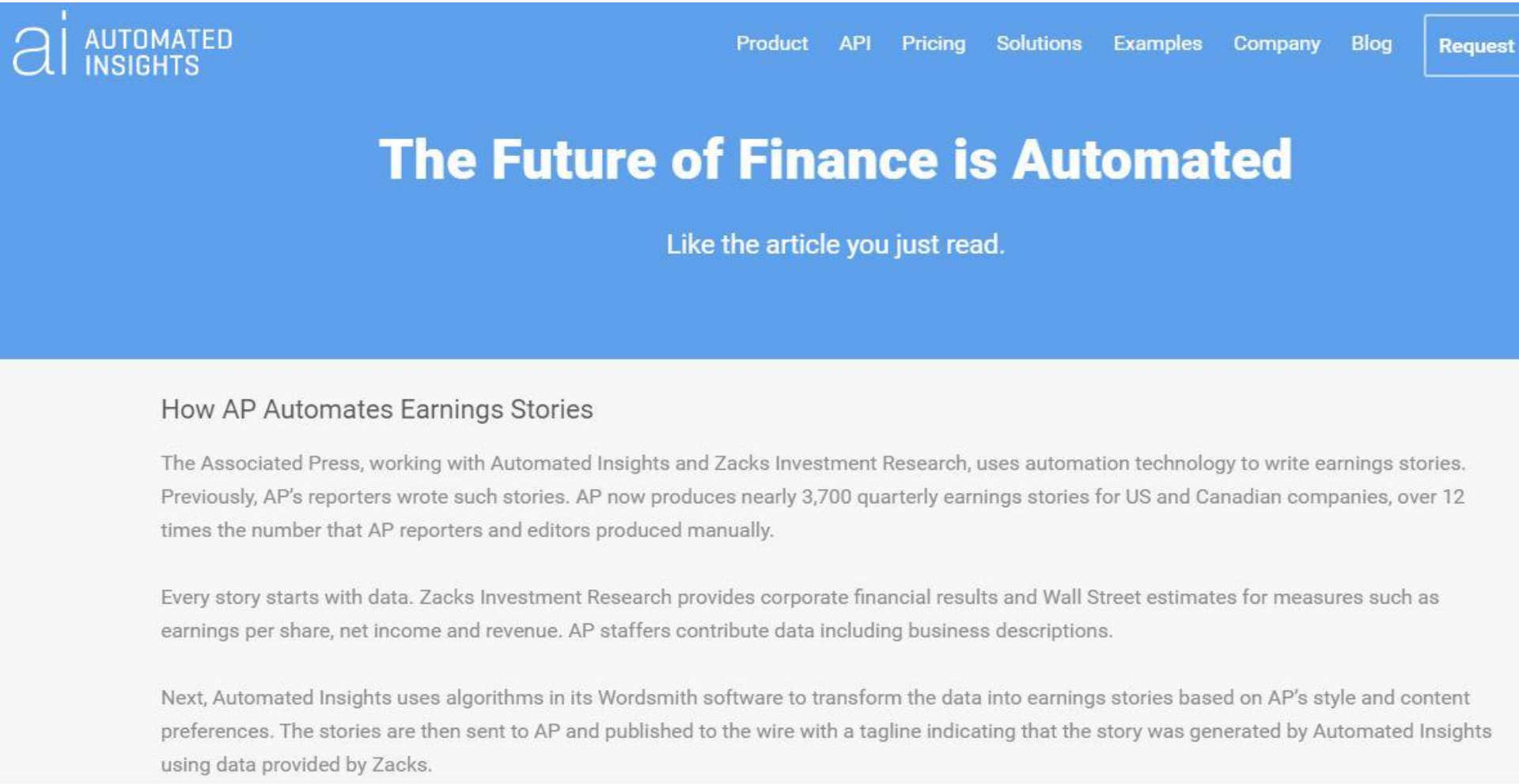
Is this time different?

sells software to automate non-routine tasks previously performed by office workers

- The software divides the job into smaller tasks and automates the routine work
- Then Work Fusion recruits freelancers through crowdsourcing platforms for non-routine work
- The software then monitors those workers…
- And learns from them, so it can automate more non-routine tasks!

- Basically, **Work Fusion freelance workers train the system to replace themselves**!

Is this time different?



Is this time different?

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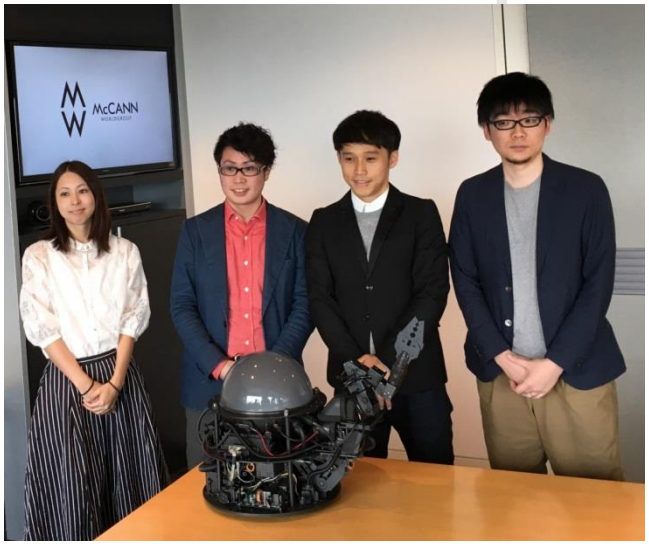
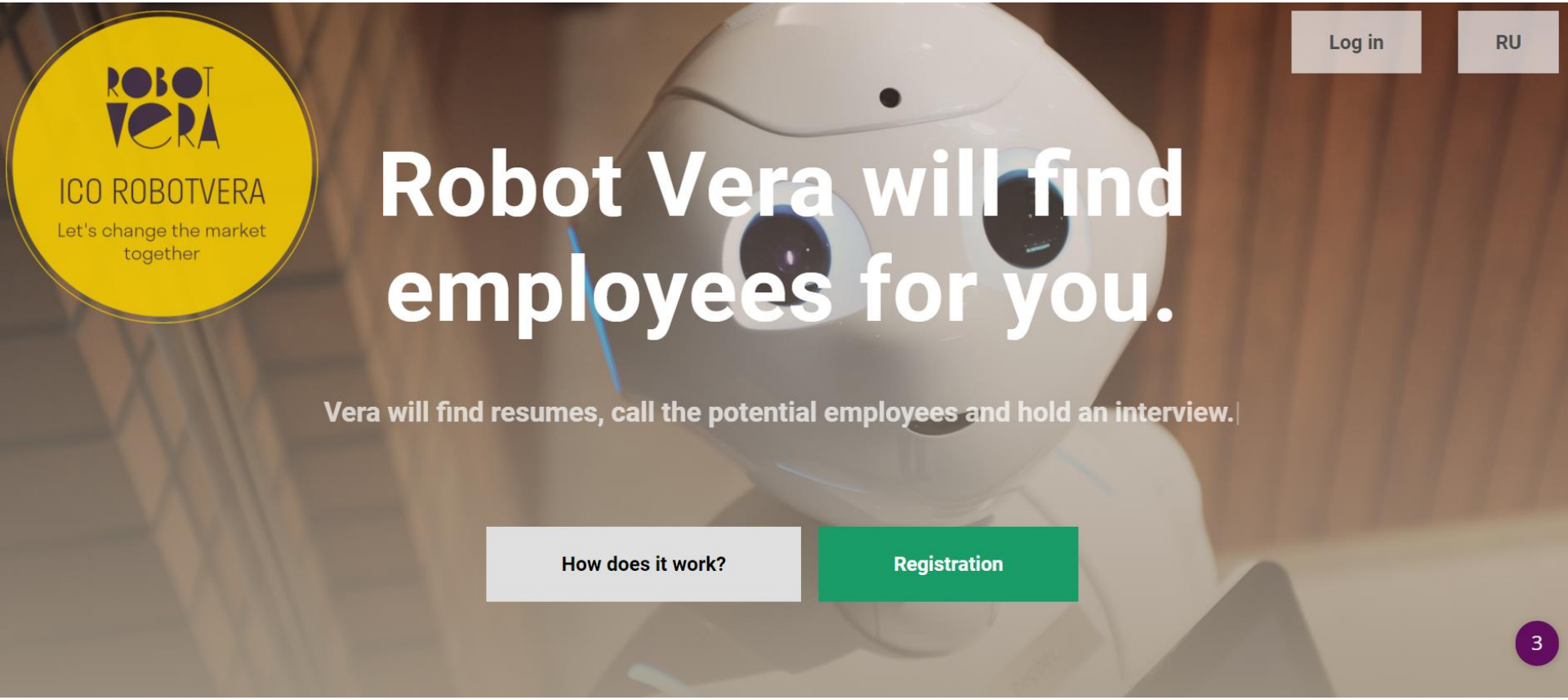
McCann Japan Appoints World's First AI Creative Director

McCann Erickson Japan has announced that AI-CD β (AI-CD beta), the world's first artificial intelligence (A.I.) creative director (according to McCann's research), will be joining the agency. AI-CD β will be attending McCann Worldgroup's new employee welcoming ceremony on April 1st, along with 11 fresh college graduates. AI-CD β was developed through the Creative Genome [...]



Is this time different?

- From HR to “HAIR”?



Is this time different?

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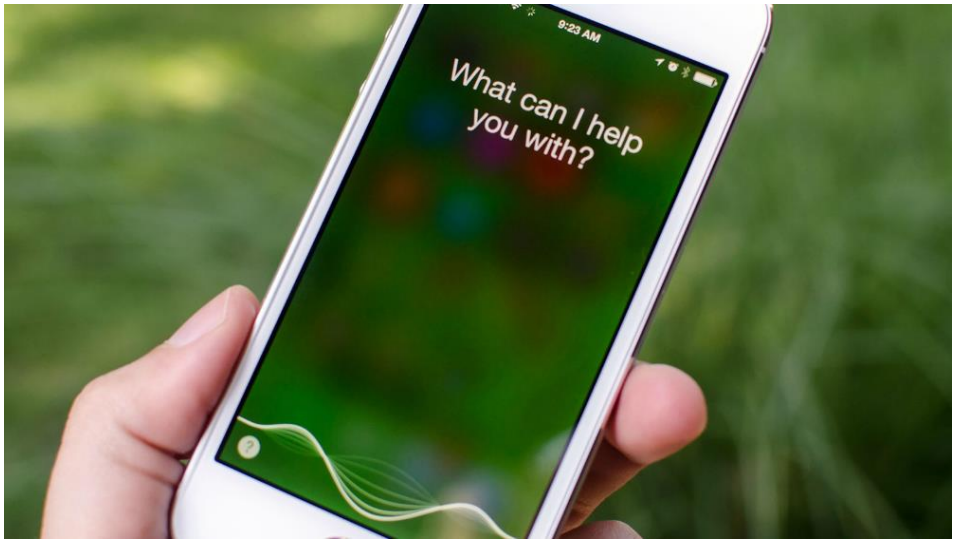

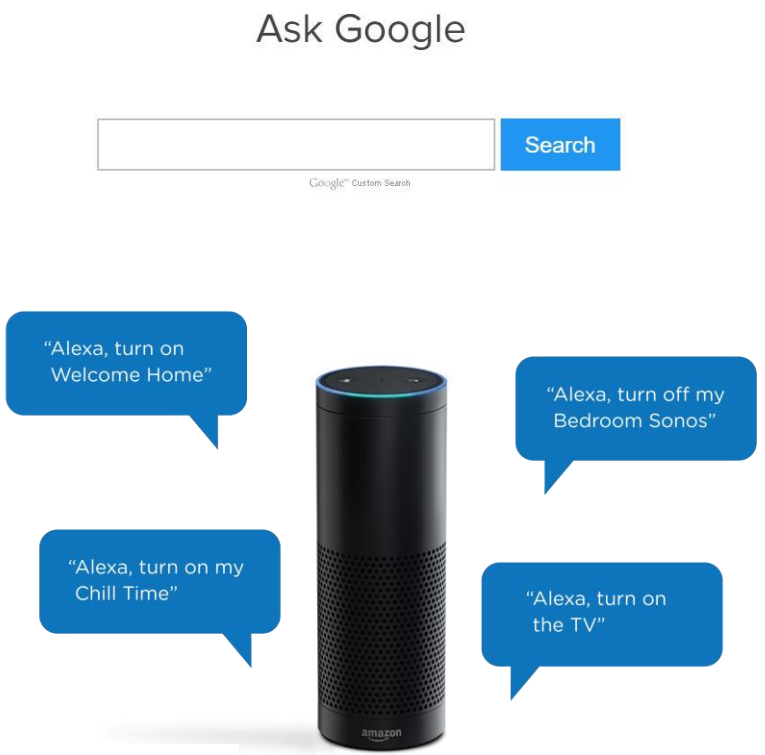

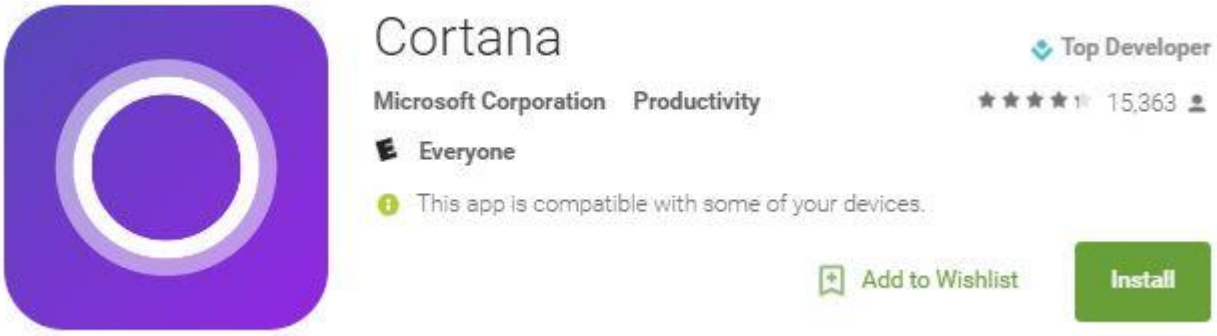

Is this time different?

Is this time different?

Proceedings of the National Academy of Sciences of the United States of America

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> Current Issue > vol. 108 no. 17 > Shai Danziger, 6889–6892, doi: 10.1073/pnas.1018033108

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Extraneous factors in judicial decisions

Shai Danziger[a,1], Jonathan Levav[b,1,2], and Liora Avnaim-Pesso[a]

Author Affiliations

Edited* by Daniel Kahneman, Princeton University, Princeton, NJ, and approved February 25, 2011 (received for review December 8, 2010)

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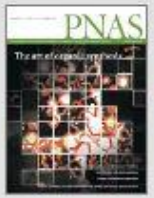
Abstract

Are judicial rulings based solely on laws and facts? Legal formalism holds that judges apply legal reasons to the facts of a case in a rational, mechanical, and deliberative manner. In contrast, legal realists argue that the rational application of legal reasons does not sufficiently explain the decisions of judges and that

This Issue



April 26, 2011
vol. 108 no. 17
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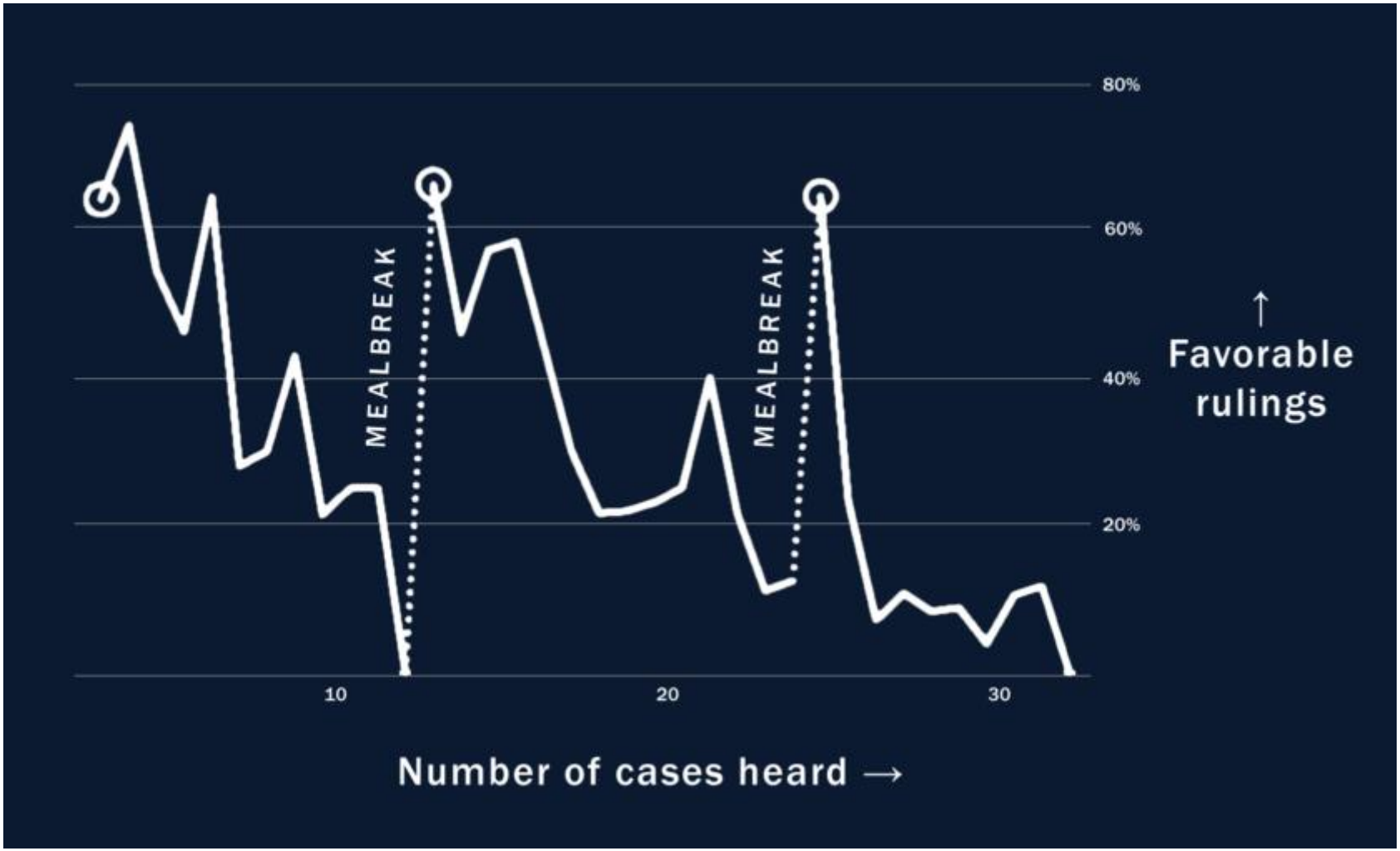


What are general consequences for nations and industries?

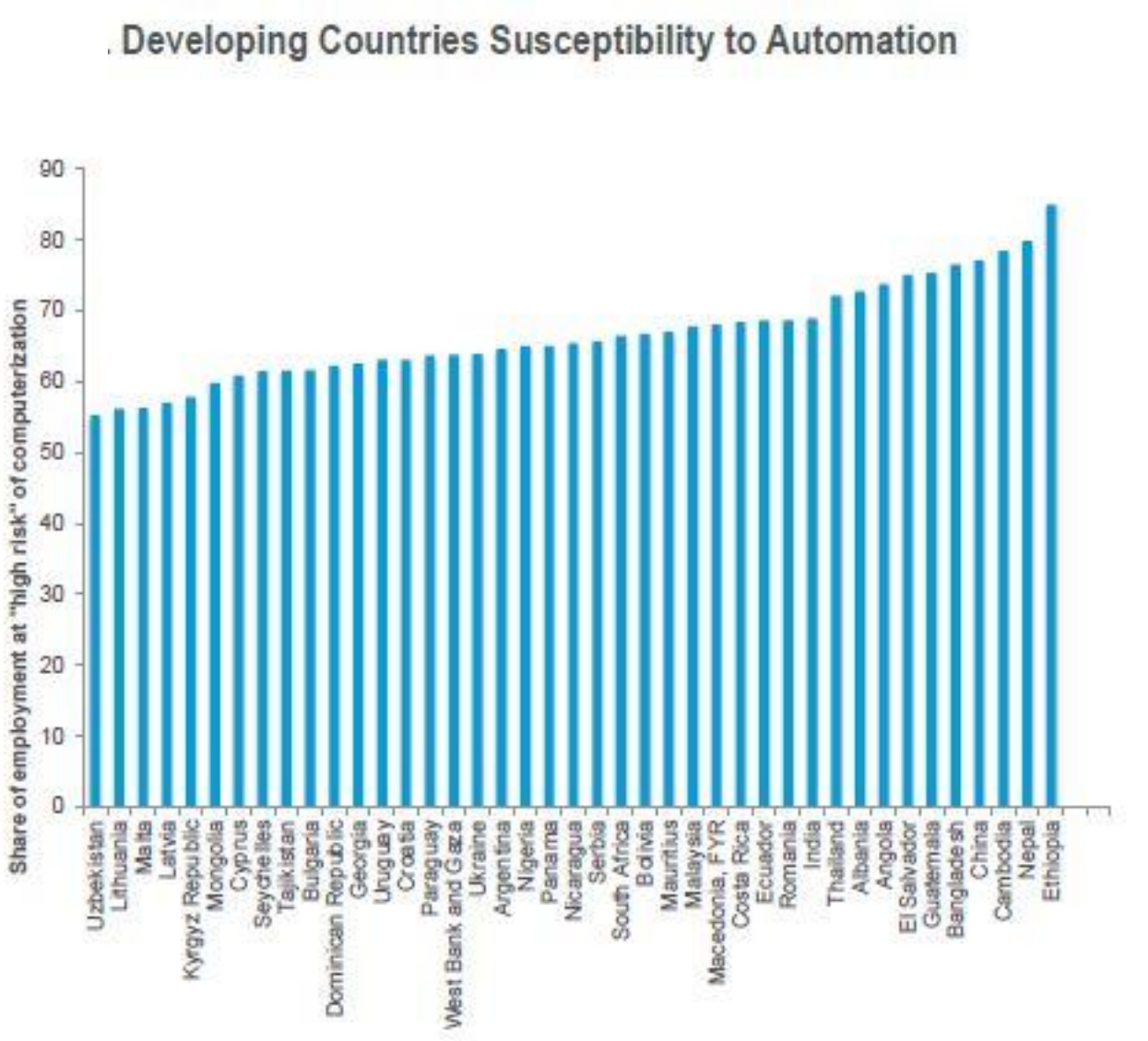
Consequences?

Employment share at risk by industry

	Low Risk (%)	Medium Risk (%)	High Risk (%)
Accommodation & Food Services	2.8%	10.5%	86.7%
Administrative & Support Services	1.6%	36.2%	62.2%
Agriculture, Forestry, Fishing & Hunting	75.6%	12.0%	12.3%
Arts, Entertainment & Recreation	47.9%	12.5%	39.6%
Construction	21.6%	19.8%	58.6%
Educational Services	63.1%	19.7%	17.2%
Finance & Insurance	28.9%	17.3%	53.7%
Government	46.2%	30.6%	23.2%
Health Care & Social Assistance	39.4%	25.0%	35.6%
Information	51.6%	38.3%	10.1%
Management of Companies & Enterprises	82.8%	6.2%	11.0%
Manufacturing	19.9%	18.4%	61.7%
Mining, Quarrying and Oil & Gas Extraction	7.8%	46.3%	45.9%
Other Services (ex Public Admin)	44.9%	24.7%	30.4%
Professional, Scientific & Technical Services	54.0%	10.9%	35.1%
Real Estate and Rental & Leasing	0.7%	32.0%	67.2%
Retail Trade	14.5%	18.9%	66.6%
Self-Employed	60.4%	8.9%	30.7%
Transportation & Warehousing	5.5%	19.4%	75.0%
Utilities	40.3%	27.8%	31.9%
Wholesale Trade	15.9%	18.4%	65.7%

Source: Oxford Martin School

Premature Deindustrialization?



Source: World Bank Development Report 2016; based on Frey and Osborne (2013) methodology, Citi Research

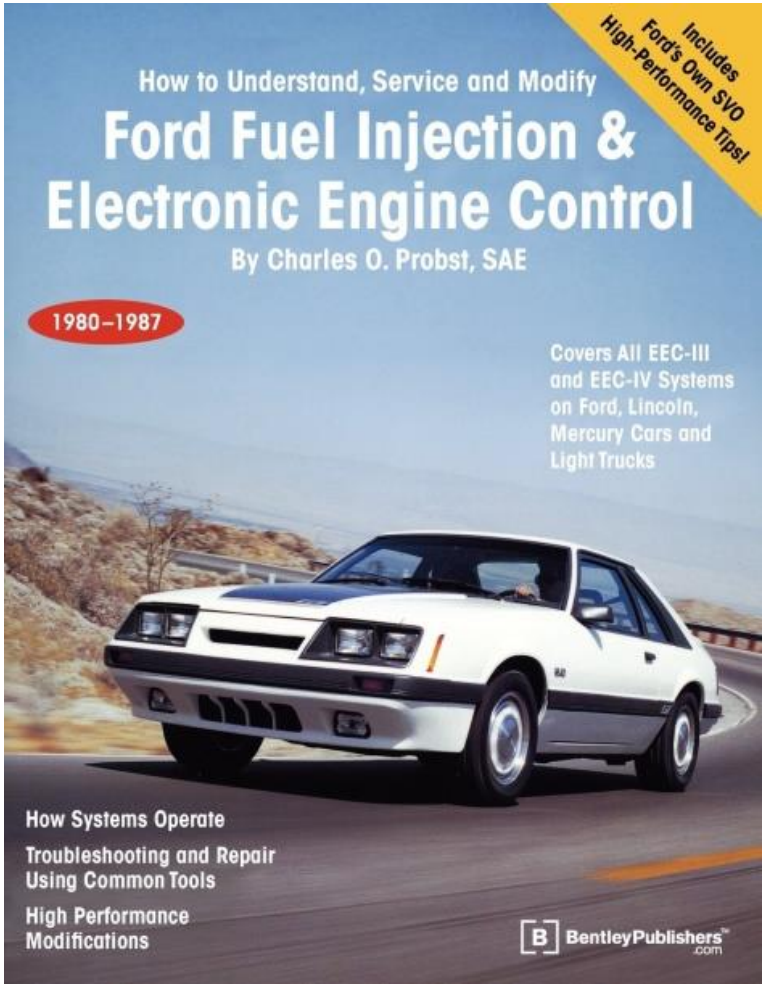
Activities versus Jobs/Occupations?

- Automation will change activities **within** many occupations

- 40 years later, by making branches cheaper to open, the number of tellers has only now started to decline

Activities versus Jobs/Occupations?

- A more sad story



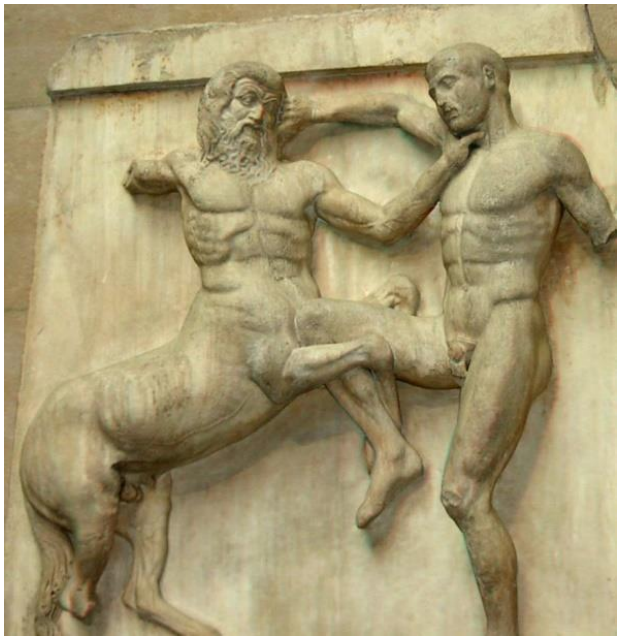
1967 – MQ: “The manager and the moron”

- “The stupider the tool, the brighter the master has to be—and this is the dumbest tool we have ever had.”

2015

"The ability to staff, manage, and lead increasingly automated organizations will become an important competitive differentiator."

What are centaurs?



1997

2011

2016 & 2017

Chess and Centaurs

Chess and Centaurs

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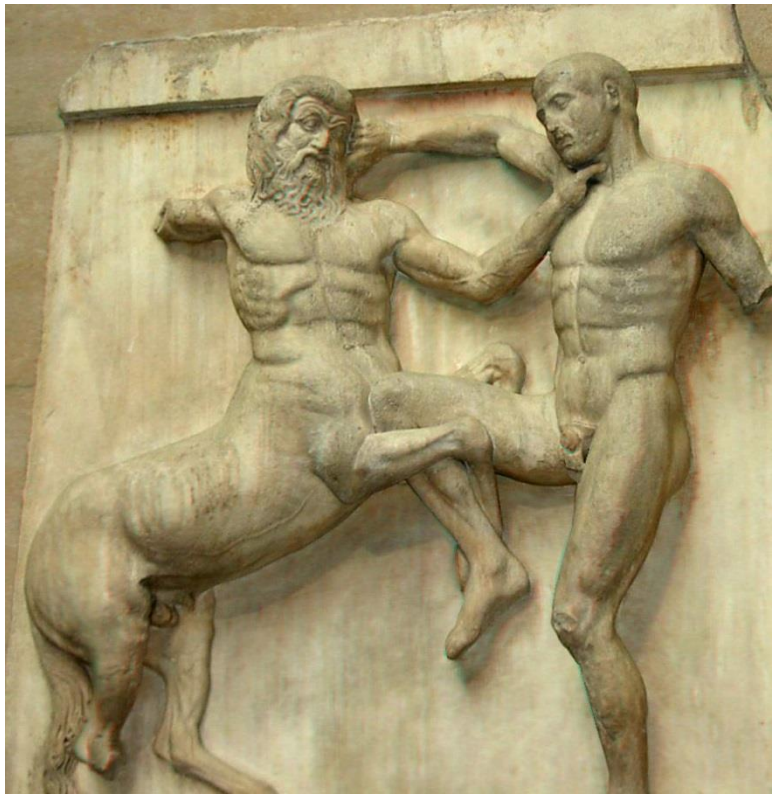


Leading (and battling) centaurs

- "A weak human + a machine + a good process is superior to…
- To a strong computer alone and…
- (more remarkably)…
- To a strong human + a machine + an inferior process."

Garry Kasparov
"The Chess Master and the Computer"

What do centaurs mean for *your* leadership?

Leadership Implications

- AI will be most definitive on relatively small questions
- Leadership will be needed **when algorithms disagree!**

Leadership Implications

- Remove friction between your team and their machine assistants!

- Design processes to create data sets worthy of intelligent machines: **polluted or suspect data wastes everyone's time**!

Leadership Implications

- Leaders also need to realize that AI-based decisions are not automatically equitable just because they are the products of complex processes
- Procedural consistency is not equivalent to objectivity!
- In other words, AI may be mathematically optimal but ethically problematic

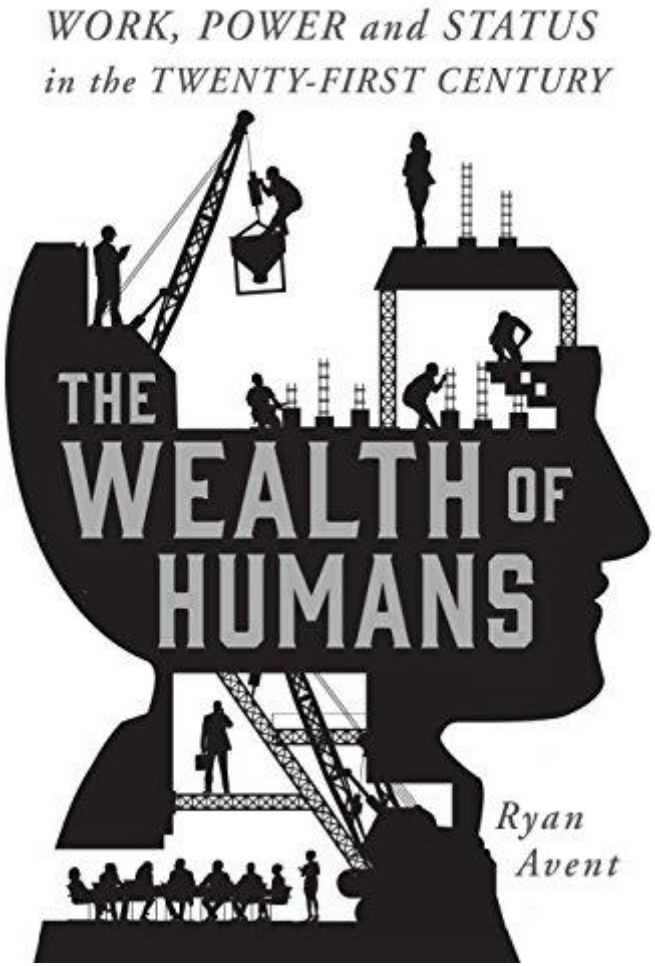
Leadership Implications

- What makes people happy?

Leadership Implications

- Leaders will tell coherent stories

To learn more…



Thank you!

Please Connect: mjones@faculty.ie.edu

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