

The Automotive Imagination



Sam Kinsley (Exeter)
RGS-IBG 2018, Cardiff

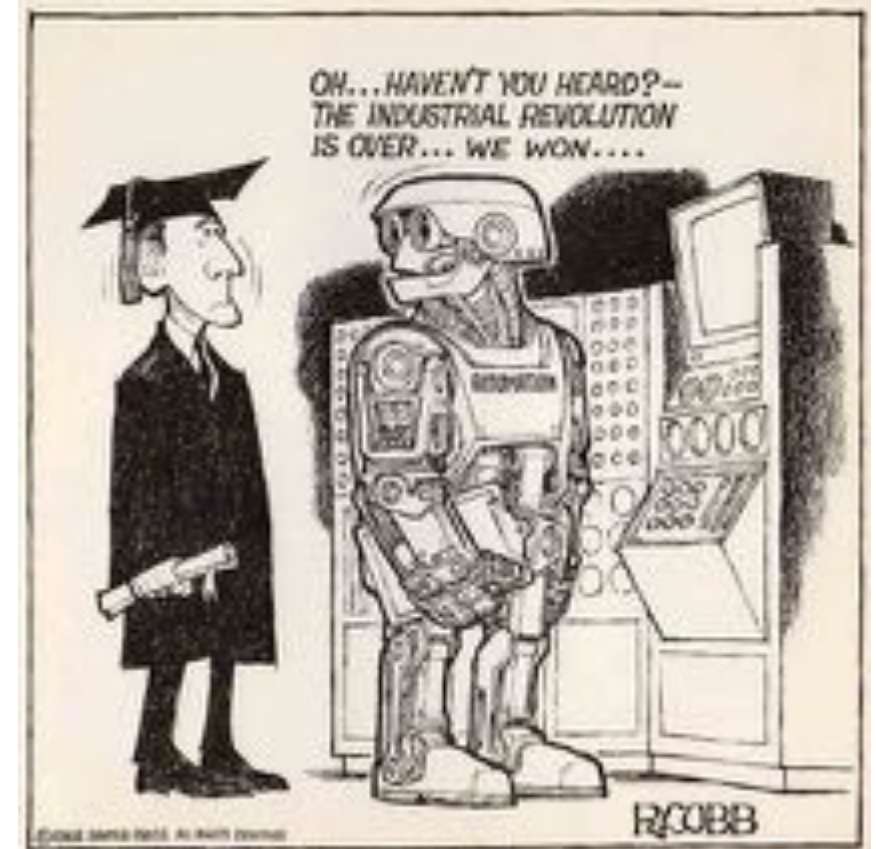
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This talk

1. Automative?
2. Automation
3. Progress
4. Risks
5. Geographical Imagination



Automotive Imagination

Automotive?

‘automatic’ } the subject/object of
‘automated’ } automation

‘Automotive’ = the characteristics of
automation

A book

Investigating how 'automation' is
imagined, predicted, made visible (or
not) through:

Figures

Spaces

Figures



Progress



'Idiots'
(Stupidity)



Machines



Monsters



Master/
Slave

[Read more](#)

Spaces



City
(Region)



Home



Factory
(workplace)



Institution
(e.g. school)



On the move

[Read more](#)

Automation

A problem of definitions

“Something more automatic than previously existed in that plant, industry or location” (Bright, 1957: 6)

A clip from BBC programme: “Inside the Factory”, series 4
(24 July 2018)

A problem of definitions

“automation is a technology quite distinct from ‘mechanization’ and it is concerned with replacing or aiding human *mental* effort as distinct from aiding man’s [sic.] physical effort”
(Thomas, 1969: 6)

Connotations

Consignment to redundancy

Freedom from drudgery

Increased productivity

...a mark of progress?

Progress

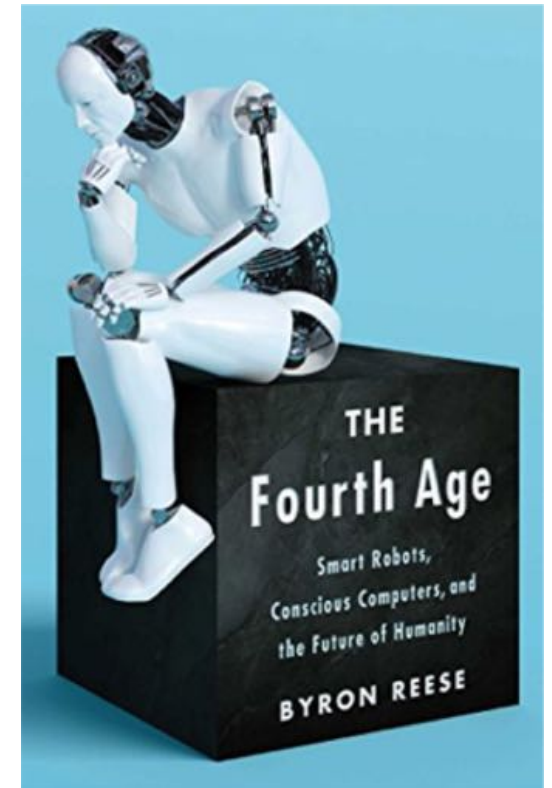
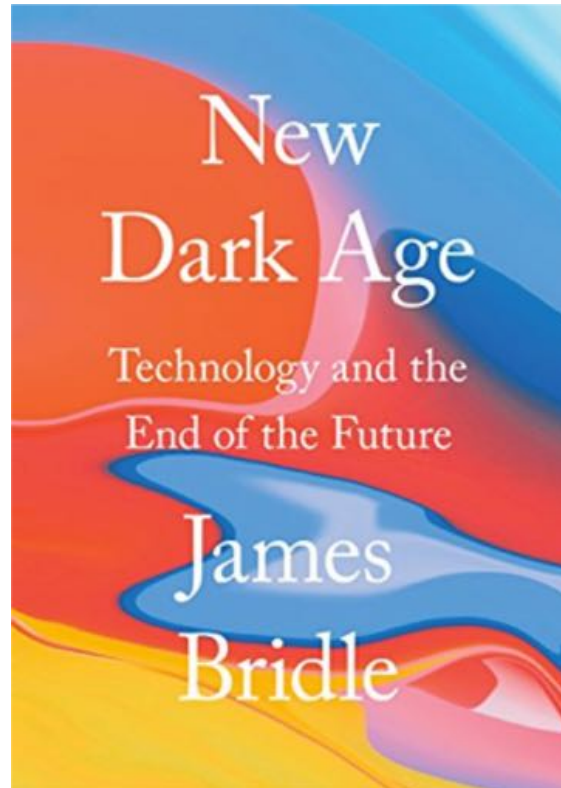
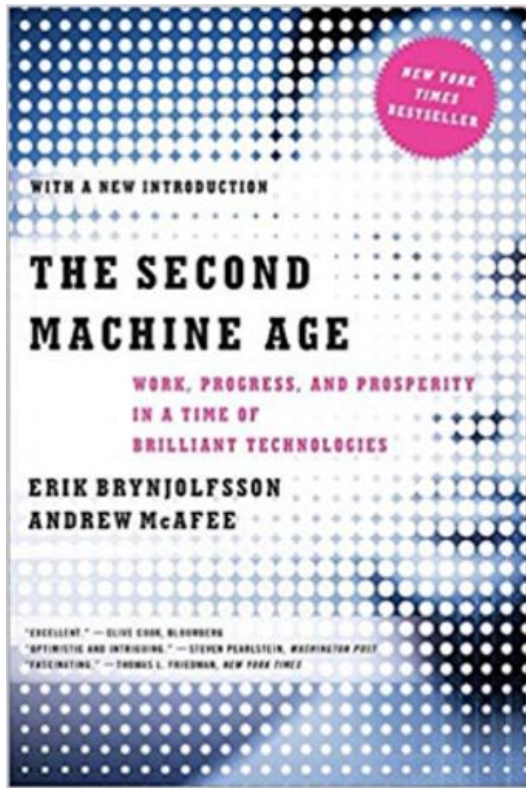
Automation anxiety

“Whatever the future holds, the present clearly offers a resurgence of automation anxiety”

(Autor, 2015: 4)



Epoch



Epoch

ALAN MAK & KLAUS SCHWAB

OCTOBER 16 2017, 12:01AM, THE TIMES

Time to lead a new industrial revolution

ALAN MAK MP AND KLAUS SCHWAB



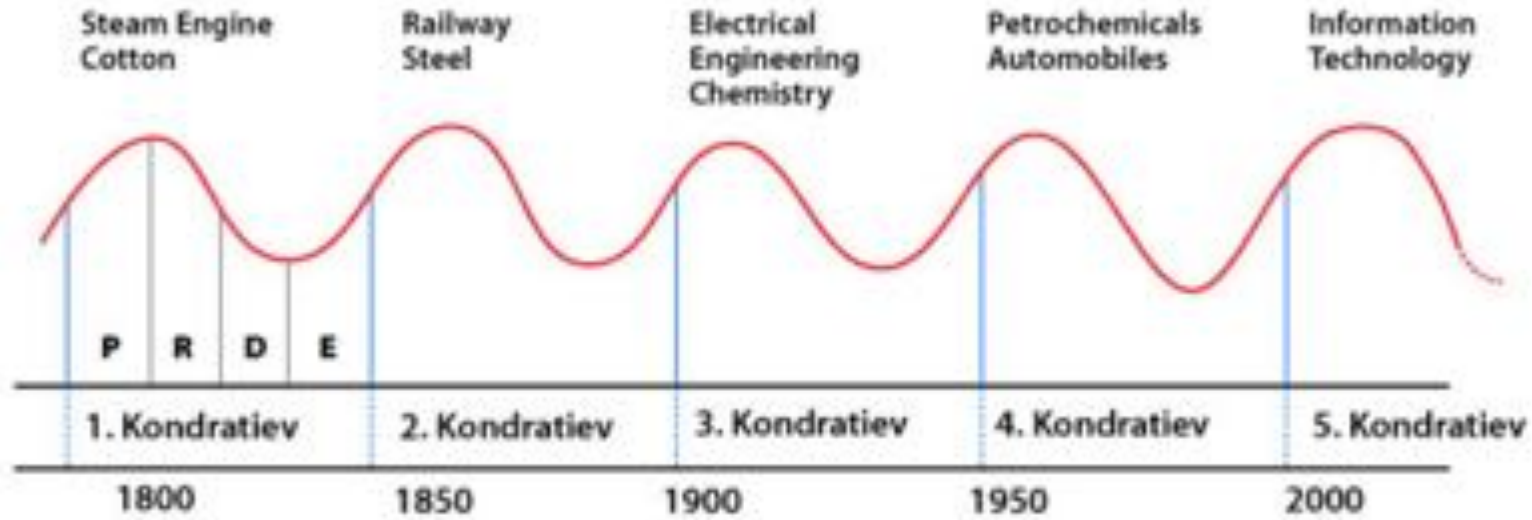
Robots may not be coming to take your job, but artificial intelligence is definitely going to change how you do it. Driverless cars will transform your experience of getting to work, and personalised medicines will keep you healthier while you do it. A new wave of technological change is transforming societies around the world. This is the Fourth Industrial Revolution (4IR).

<https://www.thetimes.co.uk/article/time-to-lead-a-new-industrial-revolution-chlsfhtvl>

Epoch

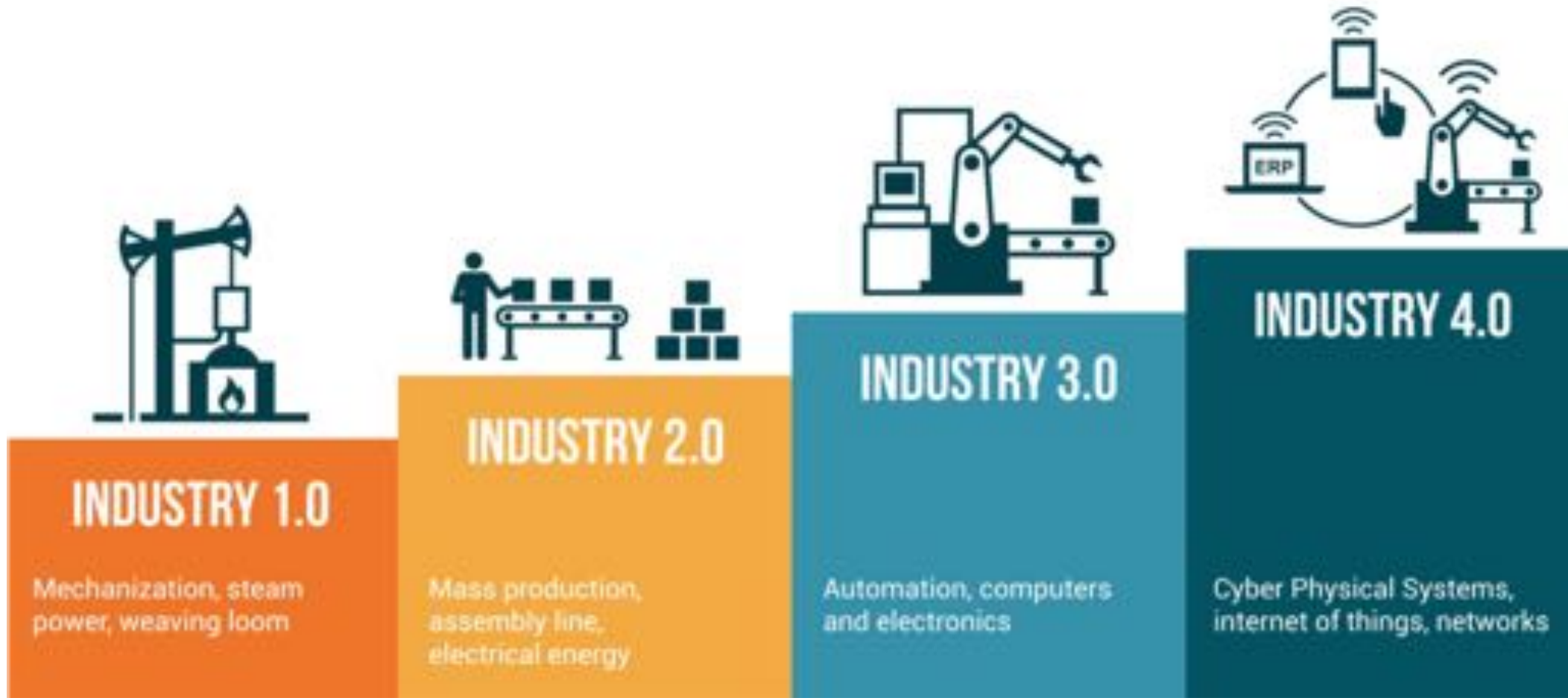
Kondratiev Waves

A schematic drawing showing the "World Economy" over time according to the Kondratiev theory

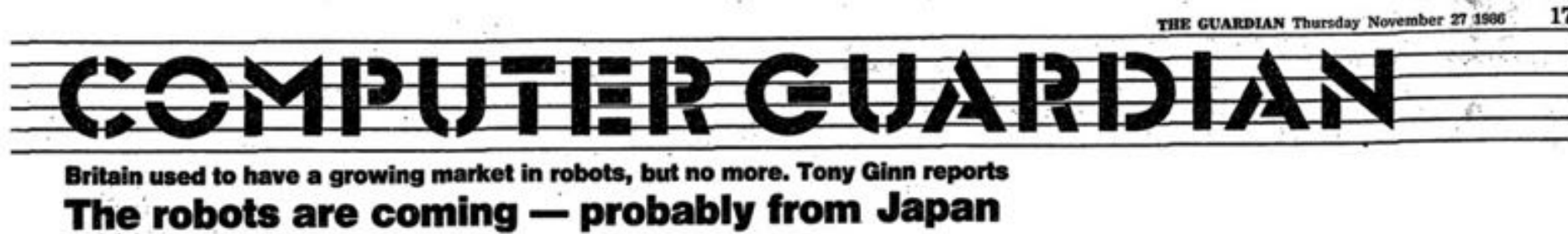


- P** - Prosperity
- R** - Recession
- D** - Depression
- E** - Improvement

Epoch



The robots are coming



1986



2017

An economic story? (i)

Temptation to see automation as reduction of labour

DIGITAL LIFE IN 2025

“ The central question of 2025 will be: What are people for in a world that does not need their labor, and where only a minority are needed to guide the 'bot-based economy?



— STOWE BOYD,
LEAD RESEARCHER AT GIGAOM RESEARCH

”



<http://www.pewinternet.org/2014/08/06/future-of-jobs/>

An old story

“We are being afflicted with a new disease of which some readers may not yet have heard the name, but of which they will hear a great deal in the years to come – namely, *technological unemployment*.”

(Keynes, 1931: 325)



Risks



<https://www.theguardian.com/commentisfree/2018/apr/30/reality-automation-terrifying>



<https://twitter.com/kevin2kelly/status/721790341527896065>

Jobs at risk

Following a 'risk'

Task: Trace how the 'fact' of a risk of job losses due to automation travels through reports.

'Risk'

Economics

Automation will affect one in five jobs across the UK, says study

Workers in shadow chancellor John McDonnell's constituency face highest risk of being replaced by robots, says research

Larry Elliott, Economics editor

Tue 17 Oct 2017 08:16 BST



This article is over 9 months old



UK edition -
The Guardian

<https://www.theguardian.com/business/2017/oct/16/automation-jobs-uk-robots>

Geographical differences in the impacts of automation
Jobs at potential high risk of automation by parliamentary constituency

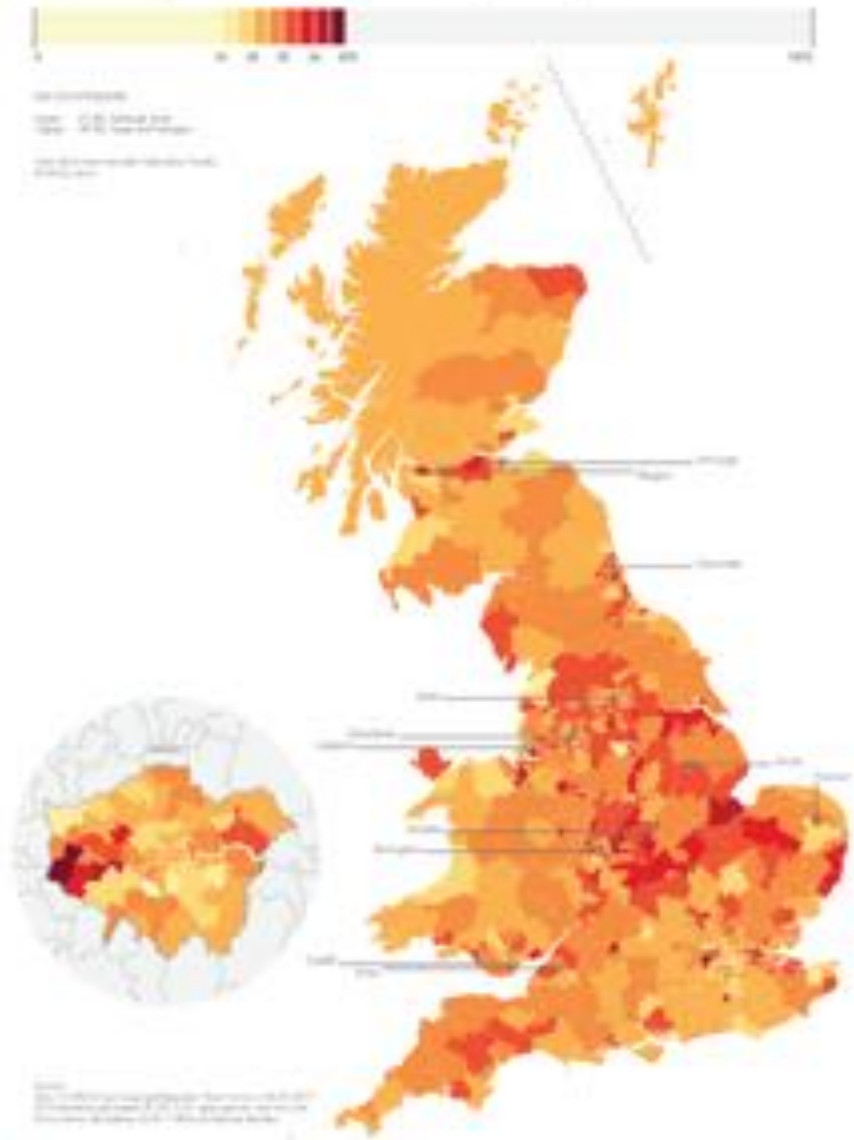


Figure 11 Heat map showing how the potential impact of automation could vary across Great Britain. Each constituency is colour-coded according to the percentage of current jobs that are at high risk of automation by the early 2030s.

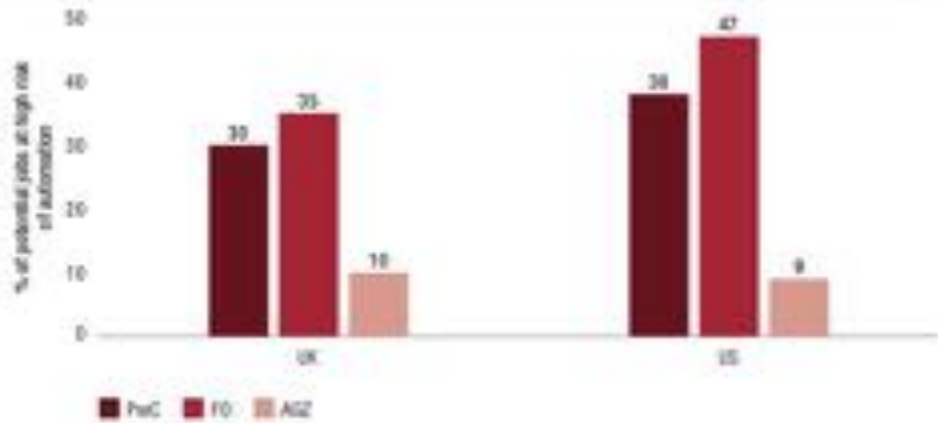
“Impacts”

FUTURE ADVOCACY

THE IMPACT OF AI IN UK CONSTITUENCIES:
Where will automation hit hardest?

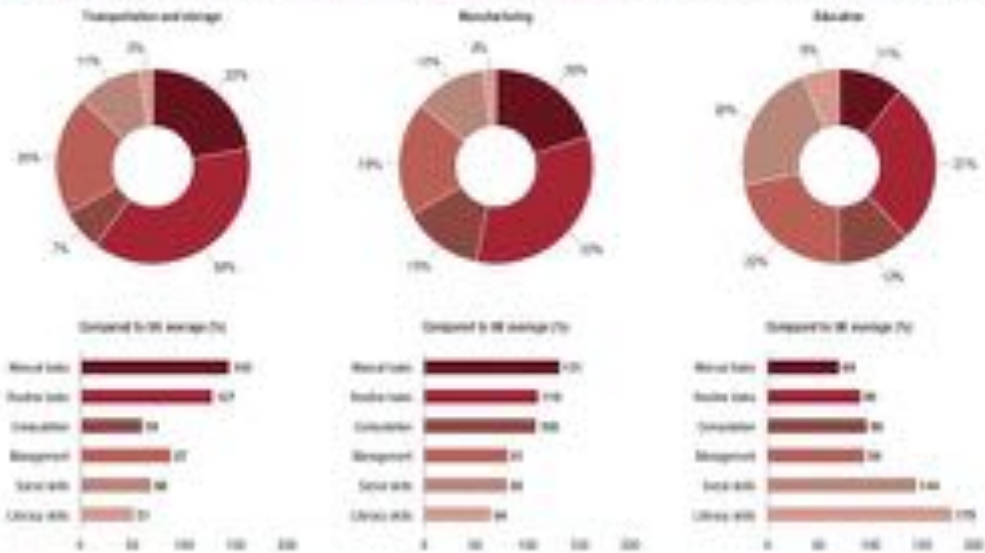
Travelling “impacts”

Figure 4.1 – What proportion of jobs are potentially at high risk of automation?



Source: PoC analysis; FO; AGZ

Figure 4.3 – Task composition for UK employees in transportation and storage, manufacturing, and education involving sectors

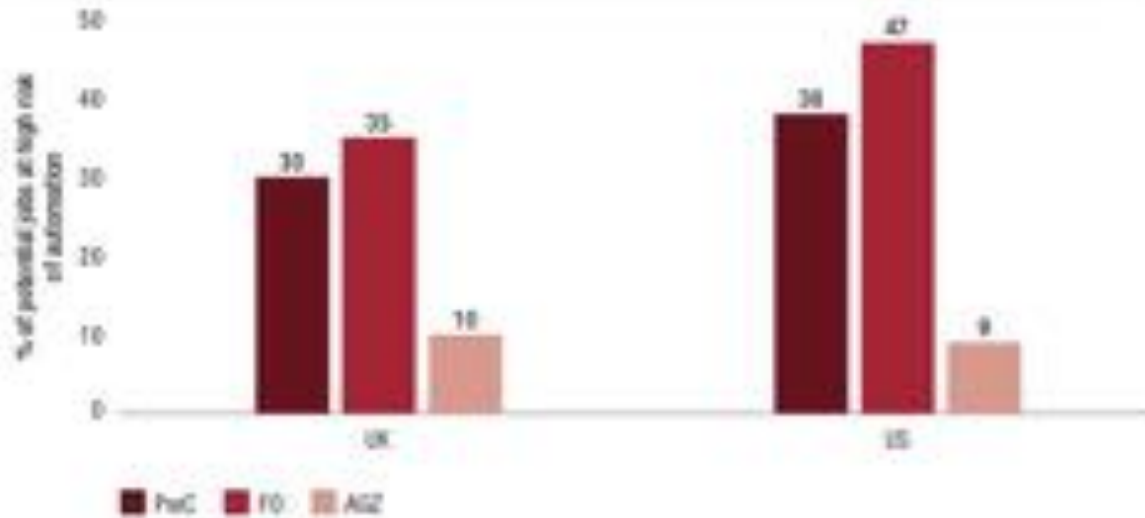


Source: PwC analysis; PoC analysis



Travelling “impacts”

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Source: PoC analysis; FO; AGZ

OECD Publishing

Please cite this paper as:
 Arntz, M., T. Gregory and U. Zierahn (2016), "The Risk of Automation for Jobs in OECD Countries: A Comparative Analysis", OECD Social, Employment and Migration Working Papers, No. 189, OECD Publishing, Paris. <http://dx.doi.org/10.1787/5f52b566a72e>

OECD Social, Employment and Migration Working Papers No. 189

The Risk of Automation for Jobs in OECD Countries

A COMPARATIVE ANALYSIS

Melanie Arntz, Terry Gregory, Ulrich Zierahn

JEL Classification: J20, J23, J24

THE FUTURE OF EMPLOYMENT: HOW SUSCEPTIBLE ARE JOBS TO COMPUTERISATION?

Carl Benedikt Frey¹ and Michael A. Osborne²

September 17, 2013

Abstract

We examine how susceptible jobs are to computerisation. To assess this, we begin by implementing a novel methodology to estimate the probability of computerisation for 702 detailed occupations, using a Gaussian process classifier. Based on these estimates, we examine expected impacts of future computerisation on US labour market outcomes, with the primary objective of analysing the number of jobs at risk and the relationship between an occupation's probability of computerisation, wages and educational attainment. According to our estimates, about 47 percent of total US employment is at risk. We further provide evidence that wages and educational attainment exhibit a strong negative relationship with an occupation's probability of computerisation.

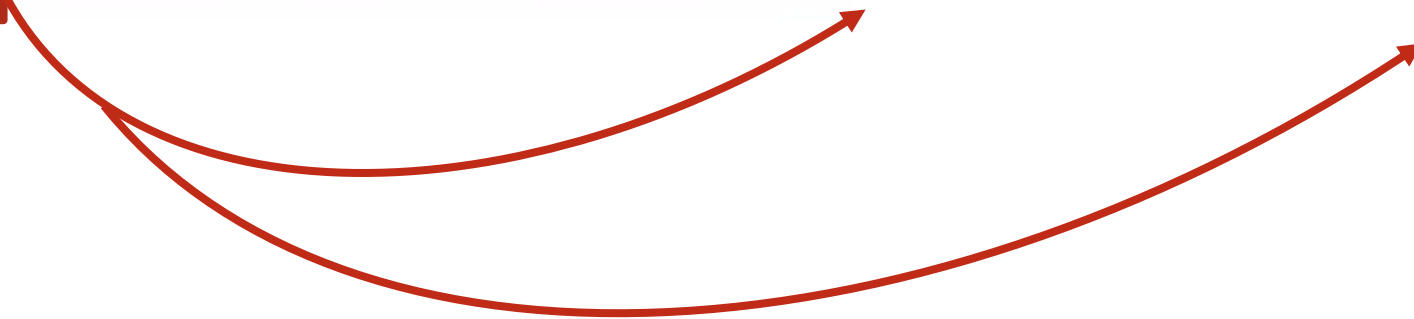
Keywords: Occupational Choice, Technological Change, Wage Inequality, Employment, Skill Demand

JEL Classification: E24, J24, J31, J62, O33.

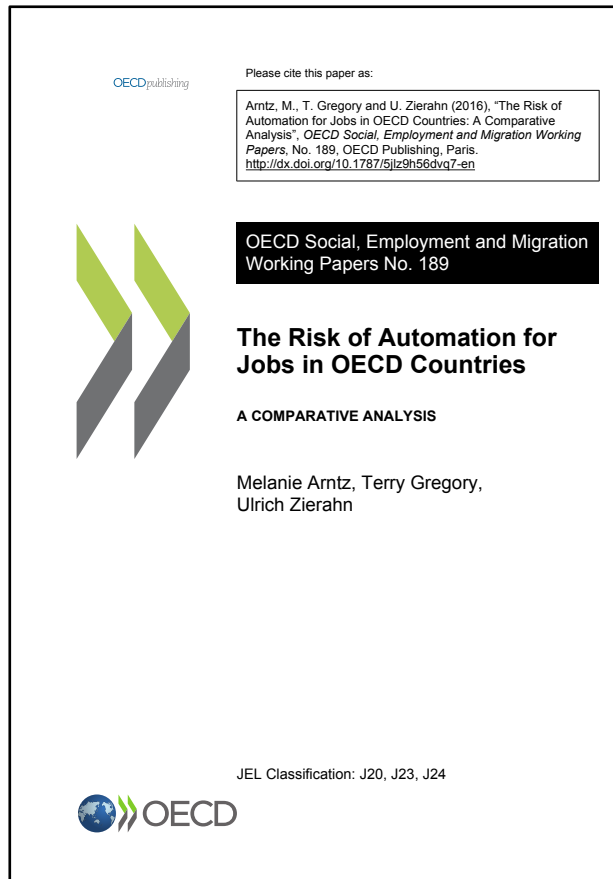
We thank the Oxford University Engineering Sciences Department and the Oxford Martin Programme on the Impact of Future Technology for hosting the "Machines and Employment" Workshop. We are indebted to Stuart Cunningham, Nick Bholmer, Eric Chanchar, Mark Cummins, Daniel Dorsey, David Dorn, Alex Elm, Claudia Goldin, John McMillan, Vincent Mueller, Paul Newman, Scott O'Malley, Andrew Sandberg, Henry Shambaugh, and Keith Wooldred for their excellent suggestions. ¹Oxford Martin School, University of Oxford, Oxford, OX1 1PF, United Kingdom, carl.frey@oxfordmartin.ox.ac.uk. ²Department of Engineering Sciences, University of Oxford, Oxford, OX1 1PR, United Kingdom, michael.osborne@ox.ac.uk.

“AGZ”

“FO”



Travelling “impacts”



“AGZ”

An economic story? (ii)

It's not 'roles' but 'tasks' that are at risk

- e.g. robotic process automation

“These studies [...] they assume that whole occupations rather than single job-tasks are automated by technology. As we argue, this might lead to an overestimation of job automatibility, as occupations labelled as high-risk occupations often still contain a substantial share of tasks that are hard to automate.” (Arntz et al. 2016: 4)

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Travelling “impacts”

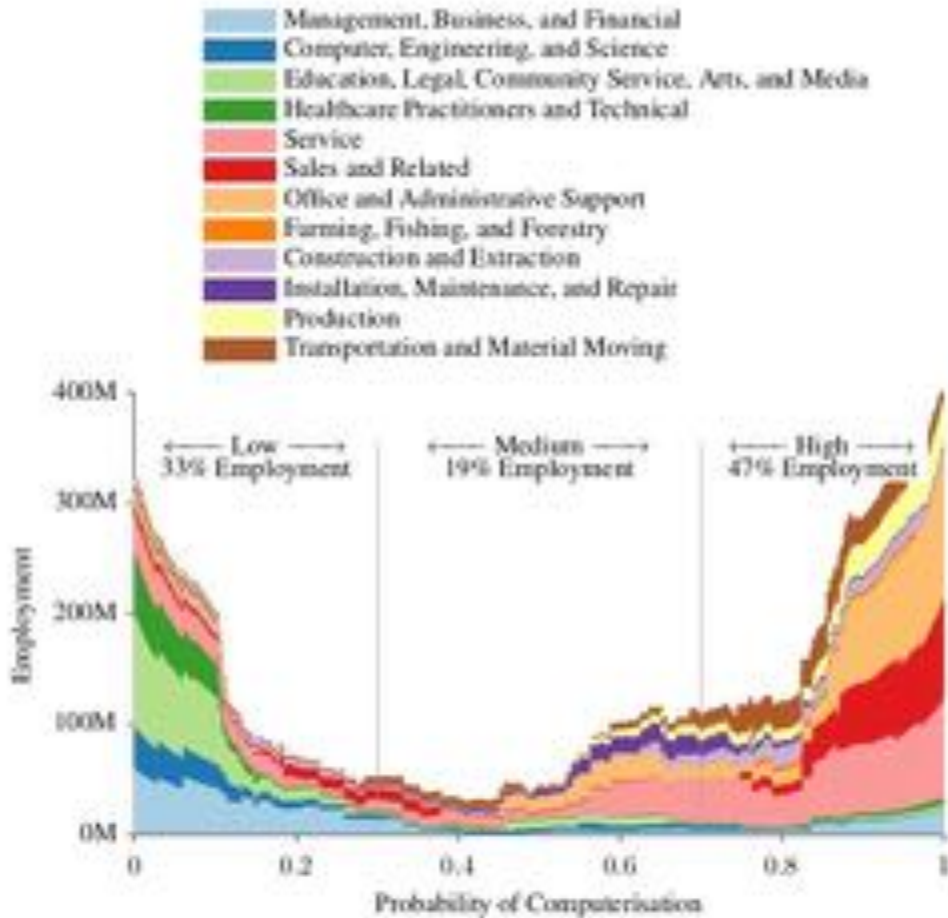


FIGURE III. The distribution of BLS 2010 occupational employment over the probability of computerisation, along with the share in low, medium and high probability categories. Note that the total area under all curves is equal to total US employment.

“FO”

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¹Oxford Martin School, University of Oxford, Oxford, OX1 1PT, United Kingdom, carl.frey@oxfordmartin.ox.ac.uk.

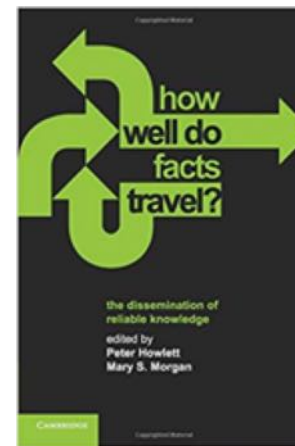
¹Department of Engineering Science, University of Oxford, Oxford, OX1 3PJ, United Kingdom, mosb@robots.ox.ac.uk.



Travelling “facts”

Mobile but not immutable
(pace Latour 1999)

Travelling through a
‘landscape’ with
boundaries & barriers
(Morgan 2016)



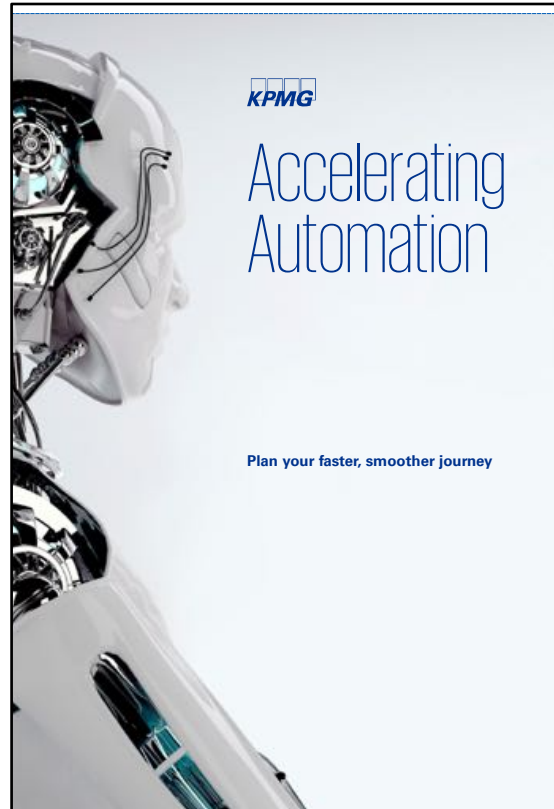
<http://www.cambridge.org/gb/academic/subjects/philosophy/philosophy-science/how-well-do-facts-travel-dissemination-reliable-knowledge?format=PB&isbn=9780521159586>



Business of “impacts”



[link](#)



[link](#)



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Geographic Imagination

Geographical differences in the impacts of automation
Jobs at potential high risk of automation by parliamentary constituency

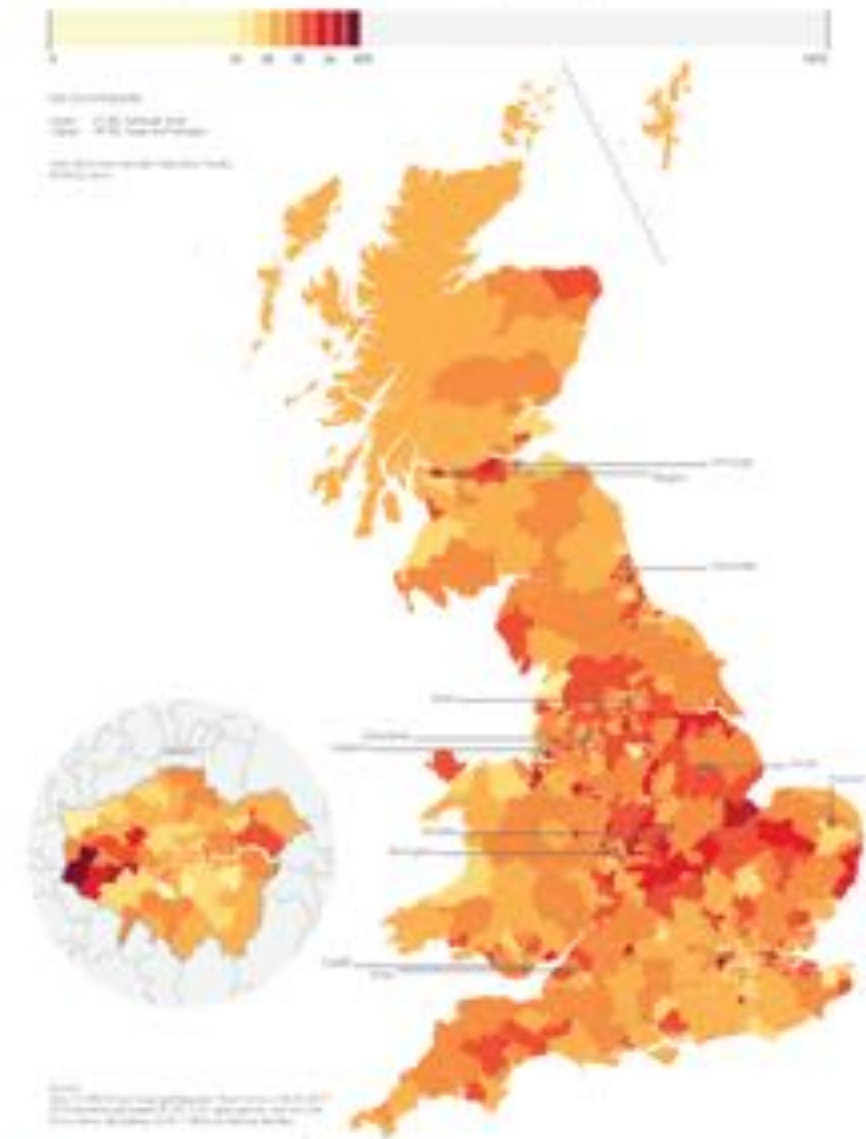


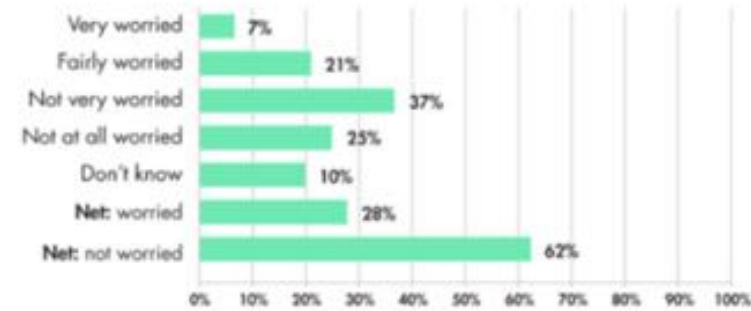
Figure 11 Heat map showing how the potential impact of automation could vary across Great Britain. Each constituency is colour-coded according to the percentage of current jobs that are at high risk of automation by the early 2030s.

Regions (still)

ARTIFICIAL INTELLIGENCE: YouGov Poll 2017



How worried, if at all, are you that jobs in your local area will be replaced by Artificial Intelligence (e.g. robots, machines) in the near future?



British people tend not to be worried that jobs in their local area will be replaced by Artificial Intelligence, robots, or machines in the near future

Total sample size was 2108 adults. Fieldwork was undertaken between 29th September - 2nd October 2017. The survey was carried out online. The figures have been weighted and are representative of all UK adults (aged 16+).

<http://futureadvocacy.com/wp-content/uploads/2018/04/FutureAdvocacy-GeographicalAI.pdf>

“Robotistan”



A Tour of Robotistan **Outsourcing's Cheapest Destination**

25 April 2013

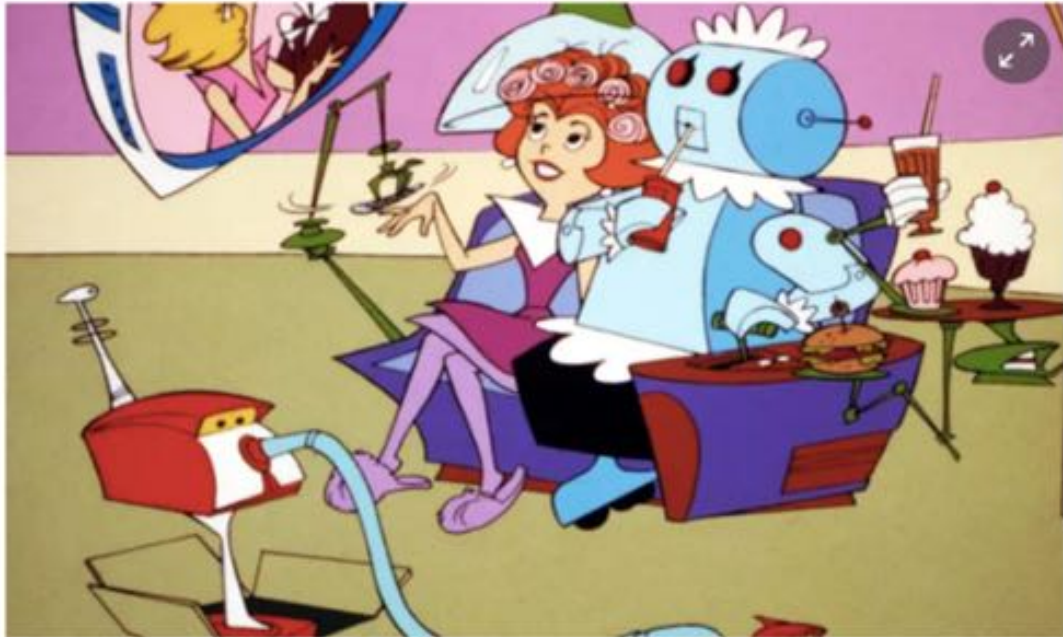
Copyright © 2013 HfS Research Ltd.

https://www.horsesforsources.com/robotistan_011112

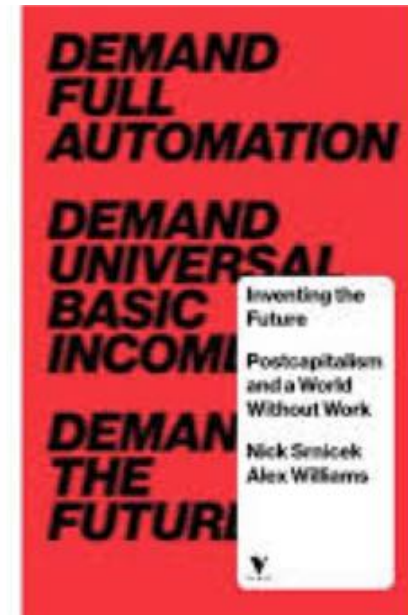
Fully automated luxury communism

Fully automated luxury communism

Supporters believe fully automated luxury communism is an opportunity to realise a post-work society, where machines do the heavy lifting and employment as we know it is a thing of the past



▲ Could robo-luxury become the norm? Photograph: Everett Collection / Rex Feature



<https://www.versobooks.com/books/2315-inventing-the-future>

<https://www.theguardian.com/sustainable-business/2015/mar/18/fully-automated-luxury-communism-robots-employment>

Directions

“Too often these purveyors of the future have their backs to society, enchanted by technological promise and blind to the problems around them. It will require more than robots to ensure that the future really is different this time.”

(Wajcman, 2017: 126)



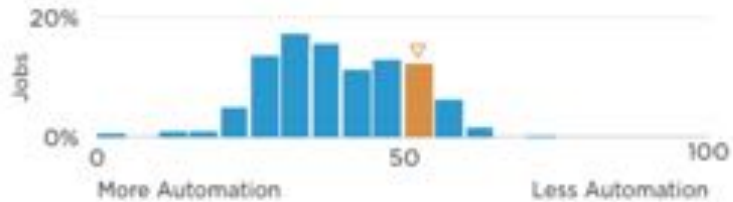
College Professors have a

3.2%

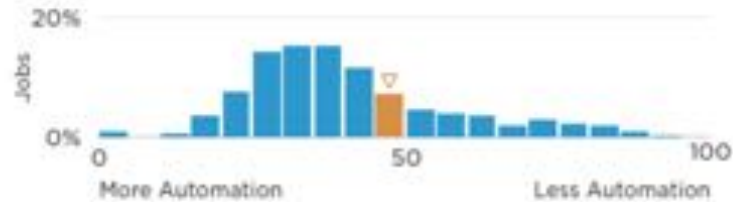
chance of being automated.

How do we know this? Some aspects of a job are easier to automate than others. It all depends on the tasks. Look at the orange bars to see how College Professors compare with other professions...

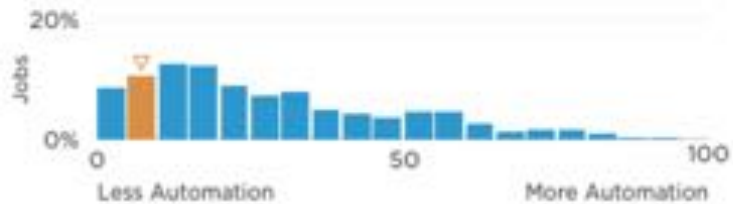
Do you need to come up with clever solutions?



Are you required to personally help others?



Does your job require you to squeeze into small spaces?



Does your job require negotiation?



[Read more](#)

Some references

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