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It's time for the luddites to relax: robots won't take over the world



[ALLISTER HEATH](#)

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Automation has gone hand in hand over the past 250 years with an explosive increase in wages and employment CREDIT: FABRICE COFFRINI

Ever since the Industrial Revolution, the great fear has always been that automation would create mass, permanent unemployment. The most famous early scare came shortly after James Hargreaves, a brilliant innovator, came up with a multi-spindle spinning frame in 1764. Hargreaves, one of an army of free-thinkers who drove an explosion in economic growth, was born near Blackburn, a cotton producing part of Lancashire.

The local textiles industry couldn't cope with demand, and Hargreaves' innovation allowed a massive increase in productivity. But our inventor kept his device secret, using it only for his own production. He was right to be prudent: after his output helped depress prices – and hence deliver consumers a windfall – angry textile workers eventually broke into his property and vandalised his machines, forcing him to flee to Nottingham.

But progress wasn't to be stopped, and automation has gone hand in hand over the past 250 years with an explosive increase in wages and employment. The reason? Machines increase output per person, and thus the demand for labour and wages. New jobs are created to replace old jobs, and then as these are automated even newer jobs emerge to replace the next lot of losses, and so on, ad infinitum. The main problem is one of [mismatching skills](#): the process of creative destruction requires capital and labour to adapt constantly.

Yet there are many today who doubt that this overwhelmingly benign process will continue, especially with the advent of [artificial intelligence, robotics, self-driving cars, drones and a new generation of learning machines](#). They are convinced that this is a new phase, and that millions of middle class jobs are about to be wiped out, with nothing to replace them.



Will the advent of artificial intelligence, robotics, self-driving cars, drones and a new generation of learning machines signal the end of the so far benign pattern? CREDIT:JUSTIN TALLIS

Some are even [advocating taxes on robots](#) – the modern equivalent of smashing up the Spinning Jennies – and a minimum income, in effect giving up on the idea that full or even mass employment will ever be possible again. Others agree that new roles will be created, but believe that too many people will lose out, triggering a catastrophic populist backlash.

The good news is that the pro-capitalist optimists are once again being proved right. LEK, a leading London-based firm of management consultants, has conducted a detailed study of trends in the UK jobs market. Its paper – Jobs for the Bots? How the UK Jobs Market Is Responding to Automation – makes for fascinating reading,

concluding that Britain's economy is responding remarkably well to automation by creating more, and higher quality, jobs.

Andrew Allum, the study's author and one of the firm's star partners, started off by examining Office for National Statistics data. Looking at 369 categories of jobs, he found that 3.6m roles were created and 1.1m destroyed between 2011 and 2016. Crucially, the majority of the new jobs are in fact in categories that are resilient to future automation, while many of the (much smaller number) of roles lost were in easy to automate sectors.



Some of the worst suffering categories will come as little surprise. Some 42,000 self-service checkouts have been fitted into shops; as a result, the number of cashier roles is down by 39,000 since 2011. For better or for worse, there are now 8,500 ANPR (automatic number plate recognition) cameras, processing 25m-35m records a day; as a result, 13,000 traffic warden jobs have been eliminated as a result. The number of cashiers is down by 39,000 (or 16pc), bank clerks have fallen by 25,000 (down 18pc), telesales people by 12,000 (or 24pc) and typists by 18,000 (or 34pc).

In *The Future of Employment: How Susceptible are Jobs to Computerisation*, a paper published in 2013, Carl Frey and Michael Osborne developed a framework to quantify what makes jobs easier or harder to automate based on the tasks contained within the job. Their thesis (backed up by much evidence) was that social, creative and complex jobs are harder to automate, and are therefore more sustainable; they assigned 20-year automation probabilities to job categories, with the likes of bank clerks and cashiers seen as facing a 97pc-99pc risk as a result of digital banking and e-money.

Allum has applied Frey and Osborne's numbers to the UK market: his key finding is that of the jobs that have disappeared in Britain in the past six years, the probability of automation was 61pc. By comparison, the jobs created have an automation probability of only 38pc, making them much more secure.



There are jobs springing up as a result of increasing internet shopping, but they will probably be temporary CREDIT: VOISIN/PHANIE / REX FEATURES

Even that number is inflated by what Allum dubs “bubble jobs”, equivalent to 25pc of the extra 3.6m roles: jobs that are springing up thanks to the digital revolution and the surge in internet shopping, but which are a temporary phenomenon because they will be automated sooner rather than later. For example, road driving occupations are up by 110,000, but face an 89pc chance of automation thanks to driverless technologies. The automation probability for the remaining 75pc of post-2011 new roles falls to just 21pc. This is extremely encouraging, and suggests that the economy is shifting successfully.

Automation itself is creating lots of good jobs, 328,000 directly to be precise: programmers and software developers are up by 84,000 since 2011, IT directors by 41,000 and mechanical engineers by 34,000. Our more complex economy and society is also creating many more jobs – Allum estimates over 600,000 in five years, including in project management and consultancy, while sales and marketing roles are up 200,000, many also driven by new technologies. Change and technology are directly creating hard-to-automate jobs, and their influence is everywhere: other drivers include demographic change (creating over 600,000 new roles) for teachers, carers and medics; and lifestyle shifts with over 500,000 new roles.

All of this is good news, with one big exception. Most of today's new jobs are complex, social and creative and so more sustainable with respect to automation; most of the roles being lost were not. The great challenge will be to upskill and train those losing their jobs, including many of the delivery drivers and others who are currently doing well from the internet. On balance, the economy will thrive thanks to technology, and most of us will do well - but we must make sure that a rising tide lifts all boats.

