THERE'S BEEN MUCH TALK, AND SOME HYSTERIA, ABOUT JOB AUTOMATION AND ARTIFICIAL INTELLIGENCE, BUT IS THIS REALLY THE END OF THE HUMAN WORKFORCE AS SOME WOULD HAVE US BELIEVE?

WILL A ROBOT STEAL YOUR JOB?

Words:
Dr Liz Alexander

THOSE OF US fascinated by *Star Trek* technology may once have dreamed of phones that responded to voice commands, robots taking on household chores, and cars that drive themselves. But did we ever wonder what effect these modern marvels would have on the world of work?

Last November, Andy Haldane, the Bank of England's Chief Economist, said 15 million jobs in the UK – about half the current working population – could soon be lost to "sophisticated machines".

That's consistent with findings by Professors Carl Frey and Michael Osborne of Oxford University, whose 2013 study, *The Future of Employment: How Susceptible are jobs to computerisation?*, proposed that 'about 47 per cent of total US employment is at risk' within the next 20 years.

The impact on manufacturing has already been huge, with armies of robots taking jobs once performed by humans – but it's not the only sector feeling the march of automation. Even as bank profits have shot up in recent years, jobs on trading desks have plummeted. In 2013, *Bloomberg Business* quoted one bank analyst who talked about firms getting rid of traders because "all they do today is hit buttons on computer screens. Twenty-five years ago they would be calling their buddies at different firms. It was a highly labour-intensive effort." Now it's largely automated.

That's just one example of how this 'evolution' is different to the technological changes that led to manual

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labour being ousted after the invention of the combine harvester. A report issued in April 2015 by Bank of America Merrill Lynch on creative disruption predicted that "machines will perform more and more tasks in banking, logistics, healthcare and other service sector industries".

But, as physicist and Nobel Laureate Niels Bohr once famously pointed out: "Prediction is very difficult, especially if it's about the future."

This seems especially true concerning technology. Who can forget the widespread belief that Y2K would be 'a crisis without precedent in human history'? So how much salt should we take with experts' assessments that the 'second machine age' will lead to massive unemployment? More to the point, who will be the fortunate ones whose jobs are least threatened by the advancement of AI?

THE HUMAN ELEMENT

"Don't fear the robots or automation and the rise of computing," says Gez Overstall, InfrasoftTech's business development expert in Guernsey. "They're just going to take away the drudgery and routine, repetitive stuff, freeing up people to add more value to the business.

"If I can find a way to make my work more efficient and finish in half the time, rather than the monotony of doing the same things for clients over and over and shuffling paper around, that frees me up for networking and getting out in front of people."

That may be true for Overstall, but not necessarily for everyone. A report from Oxford's Frey and Osborne featured on the BBC website, reveals that not every role has the same odds of survival. Those at greatest risk of automation (95-97 per cent certainty) include book-keepers, accountants and taxation experts. Roles assumed not to be so easily taken on by machines (seven to nine per cent certainty) are management consultants, business analysts such as Overstall, and CEOs.

"Automation is a massive threat, but also an opportunity as long as you're at the 'thinking' end of the industry," says information consultant Dan Hare, Director of Continuum in Jersey. "If you can draw on a flow chart how something is supposed to happen, you can automate it. You are safer if you have three things that are essentially human skills – negotiation, helping other people and coming up with new ideas."

Which begs the question, just how 'sophisticated' and 'intelligent' are the machines that could replace us? Maybe not so much, even now. As the authors of *The Second Machine Age*, Erik Brynjolfsson and Andrew McAfee, point out: "Computers and robots remain lousy at doing anything outside the frame of their programming."

Take this simple statement by Hector Levesque, AI Researcher in the University of Toronto Department of Computer Science: "The large ball crashed right through the table because it was made of Styrofoam". You read that ambiguous sentence as meaning the table (not the large ball) was made of Styrofoam, right? But a computer would flounder at making that inference, says Levesque. In short, machine automation – at least as it stands today – isn't really about thinking, it's about removing the paperwork burden and handling huge quantities of disparate data really, really fast.

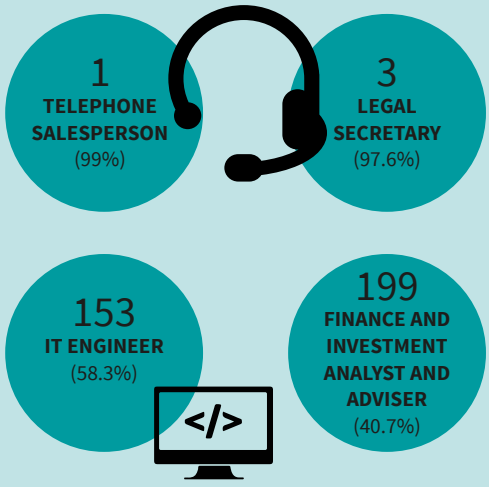
FINDING THE BALANCE

Barry Matthews, an expert on robotic process automation (RPA) technology and Managing Director of independent management consulting firm Alsbridge, agrees that while technology has matured and advances in AI are an "unstoppable tide", machines still aren't intelligent in the same way that we are. Those currently used for back office 'heavy lifting' can only act on rule-based algorithms programmed by their human masters.

Nevertheless, he cites an example where RPA took data spread across many different file formats and posted it into the right accounts so quickly that it enabled a global bank to close their books in days rather than weeks and reduce headcount by 70 per cent. It simply replicated what a human would do, only so much faster and without the need to eat, sleep or take holidays.

However, as Dan Hare counters: "In financial services, the advantage we have is customers. The best way to service those clients is by embracing automation and making sure we have better quality information with which to add value to them."

WHO MIGHT GO FIRST?



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Think, for example, how we've become used to the convenience of ATMs rather than having to wait for a bank teller. Or how much quicker and easier it is to book an airline ticket online than go through a travel agency. Yet when we have a problem for which we don't even know the right question, let alone the answer, it's a human being we want, not automated options.

The balance to be reached is human-centred, rather than technology-centred automation. Indeed, as Jonathan Aldrich-Blake, Global Investment Manager and tech sector specialist for Ashburton Investments says: "Automation may be a bigger risk in emerging markets where the economy is still largely based on physical labour. The UK is a developed market and is less about manufacturing processes than it once was. The higher end or skilled jobs still need somebody who has decision-making control."

"If a customer says to me: 'What's the business case for sourcing my data warehouse to India rather than Eastern Europe?', or insource it rather than outsource it, I'll use technology to provide those data points and all the evidence," adds Barry Matthews. "But understanding what the customer wants, assessing it and then providing recommendations is something that only a human will be able to do for many years to come. I hope."

TURNING POINT

Why speak of hope? Because of the likelihood, at some point, of the 'technological singularity' – a term coined by futurist Ray Kurzweil to describe "a future period during which the pace of technological change will be so rapid, its impact so deep, that human life will be irreversibly transformed."

Says Matthews: "When a machine can start to think for itself and design other machines, that's when we all have to worry. That's a real inflection point because then you lose control, robots can do what they like without having to obey their human masters. At the moment that remains in the realm of science fiction movies."

Then again, as the Kyle Reese character says at the end of the film *Terminator: Genisys:* "One thing we know for sure: the future is not set." ■

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WHEN ROBOTS GO BAD

Despite all the talk of robots taking over certain jobs, automation isn't foolproof, as a recent example of market trading demonstrated starkly.

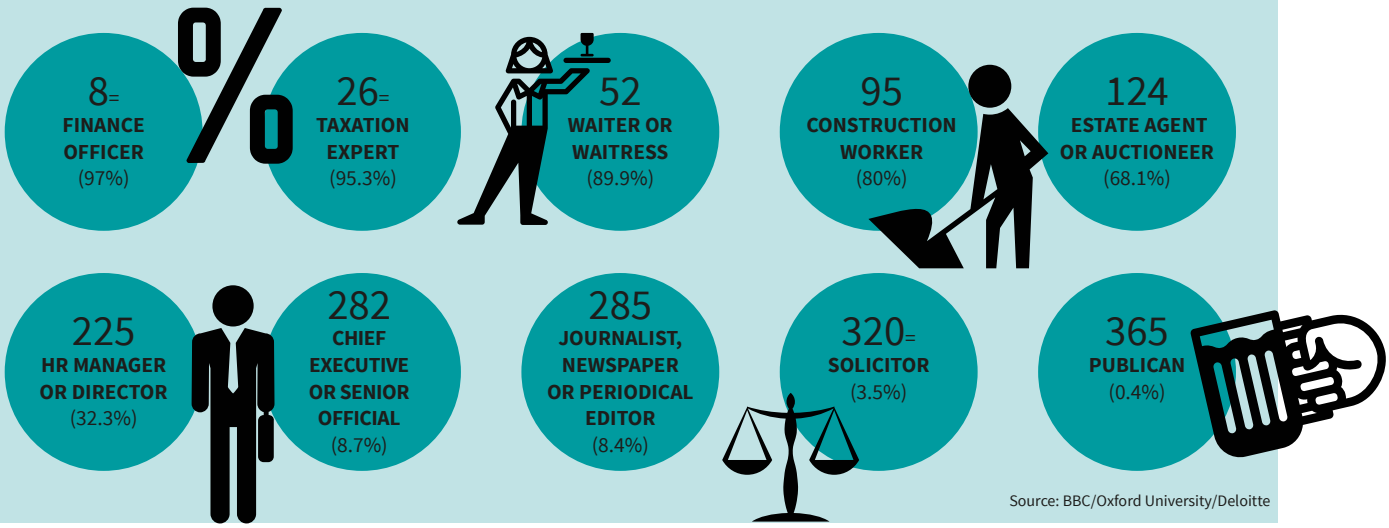
High-frequency trading (HFT) platforms, and a form of AI also referred to as 'algos', have been used on Wall Street since 1999. According to Marc Goodman, author of *Future Crimes*, they now "represent up to 70 per cent of the trading volume on the Dow Jones".

Goodman relates how, in April 2013, the Dow Jones Industrial Average and the S&P went into freefall, with $136bn in shareholder value wiped out within three minutes. Why? Because these algorithms, while making "trillions of calculations per second" and executing trades "in less than a half a millionth of a second" rely on the automated reasoning of software programs written by human beings.

So, when a group calling itself the Syrian Electronic Army (SEA) hacked the Associated Press' official Twitter news feed and falsely posted news of two explosions in the White House, injuring President Obama, the algos began selling like crazy, as they'd been programmed to do when scanning news sources that reported terrorist attacks.

As Goodman points out, had a human looked at the false SEA tweet they "might have noticed it was poorly phrased, was not in Associated Press style format" and had other "subtleties lost on a robot-trader".

SOME JOBS ARE MORE LIKELY TO BE AUTOMATED THAN OTHERS. HERE, A SELECTION OF JOBS ARE RANKED OUT OF 365 PROFESSIONS, AND A PERCENTAGE GIVEN ON THEIR LIKELIHOOD OF AUTOMATION



Source: BBC/Oxford University/Deloitte