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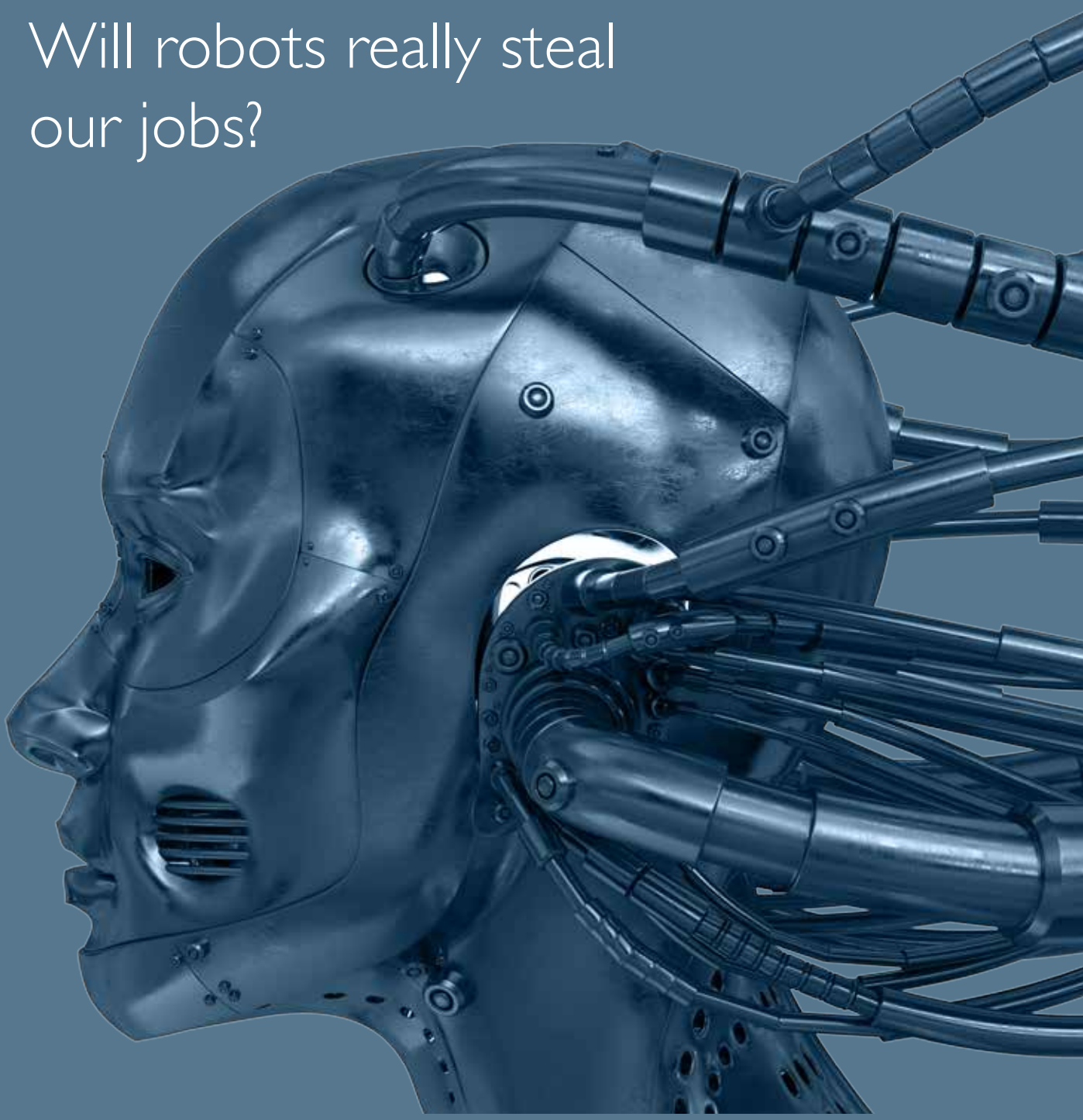
Will robots really steal our jobs?



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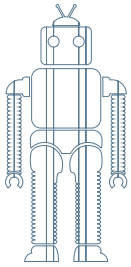
Will robots really steal our jobs?

Media hype can make the future of automation seem like an imminent threat, but our expert in unmanned systems, Dean Thomas, dispels these doubts and discusses how machines are shaping a modern, more prosperous era.

WILL ROBOTS REALLY STEAL OUR JOBS?

The UK workforce is under threat. Within a few short years we'll all be replaced by an army of robots, capable of doing our jobs better, faster and cheaper.



Well at least that's what we're being led to believe with a near-constant stream of articles, reports and news highlighting the imminent robotic revolution. These robots represent systems that can understand human behaviour and make decisions, yet in their current form this is more likely to manifest through technologies for virtual assistants, like Alexa, Siri and Google Now.

Most of us don't feel threatened by a device whose primary purpose is to turn on your lights. But over the next five years these 'robots' will become much better at making decisions on our behalf, in more complex scenarios. And this will become the catalyst for mass adoption and the saturation of artificial intelligence (AI) into many of our industries.

The governor of the Bank Of England, Mark Carney, warned at the end of 2016 that up to 15 million British jobs could be replaced by robots amid a "merciless" technological revolution on the back of research from Oxford University. According to Carney, middle-class service jobs such as accountants, auditors and estate agents could face upheaval at the hands of emerging artificial intelligence.

He's not the only authority speaking up on the subject. A recent report published by analyst firm Forrester highlighted that "by 2021 a disruptive tidal wave will begin. Solutions powered by AI and cognitive technology will displace jobs, with the biggest impact felt in transportation, logistics, customer service and consumer services."

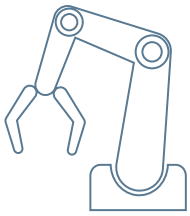
Many of these predictions and articles have one thing in common: they're negative. Phrases like "tidal wave" and "merciless technological revolution" are designed to instil fear. Yet in the past, despite concerns, technology has always ended up creating more jobs than it destroys.

AUTOMATION – AN INEVITABLE PART OF THE FUTURE

Do we really have cause to be fearful? We've been here several times before and technology hasn't yet made humans obsolete. From the Industrial Revolution, when textile workers feared the introduction of machines, through to the rise of computers in the 1960s, which saw President John F. Kennedy declare that the major domestic challenge was to "maintain full employment at a time when automation…is replacing men".

Through several waves of technological revolution, humans have retained their position of power in the workplace, working alongside machines, repairing machines, or finding employment in new industries made possible by machines.

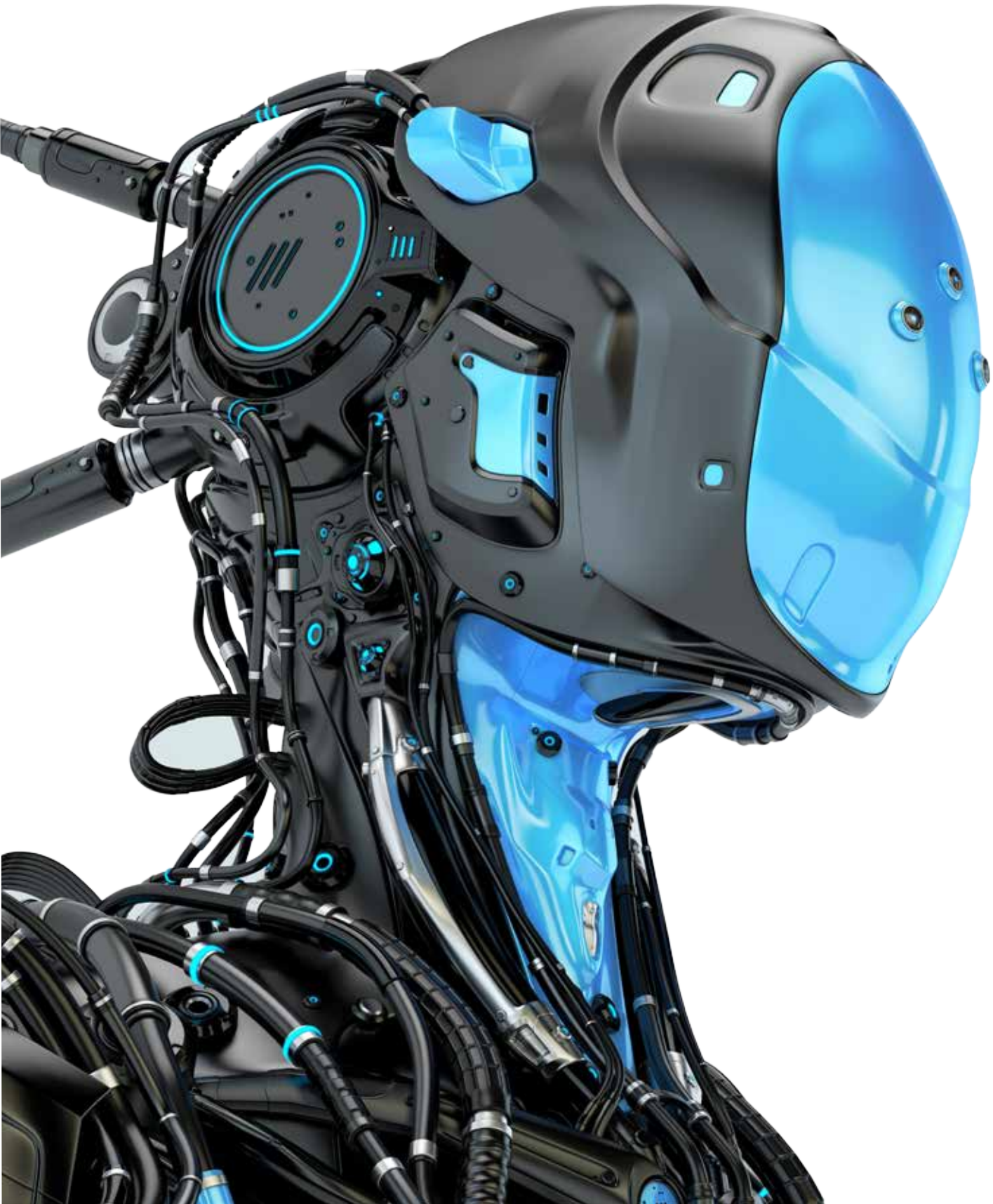
Automation is a challenge, but rather than considering it a threat it's time to acknowledge it has the potential to bring huge benefits to a range of industries. Progress won't be made until automation is accepted as an inevitable part of our future and we start to consider the possibilities and not the risks.



For example, automation is a positive step for UK manufacturing, boosting production volumes, bringing better quality assurance and reducing both the cost involved and the time taken to create a product. Ultimately it makes the product in question cheaper and more accessible to far more people.

Take the precision engineering of jet engines, for example. If this task can one day become automated, we can create more jet engines, build more planes and make flying even more affordable.

“Automation – an inevitable part of the future”



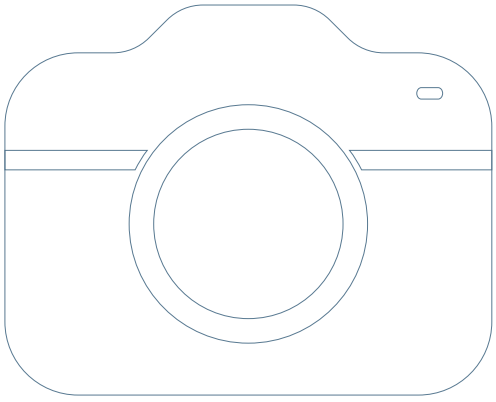
A FOCUS ON MANUFACTURING

Automation can also prove hugely valuable by eliminating human error from the manufacturing inspection process, making sure any fault, no matter how small, is identified. In many cases, the biggest benefit is not just creating a 'quality' product, but ensuring public safety.

But the 'rise of the machines' doesn't mean the removal of humans. As robots come into the workplace, the human element perhaps becomes even more critical in managing this new environment. For example, far from being a threat to the unskilled workforce, the use of automated inspection tools will likely bring the skill requirement down, providing opportunities for new workers without years of experience to take on demanding inspection roles.

Automating the inspection process will increase the profitability of factories by speeding up what is currently a time-consuming process that can cause bottle necks in production. By reducing the human involvement, factories can ultimately create more products, yet humans will continue to play a role in managing the process, maintaining the equipment and ensuring quality control.

When it comes to inspection technologies, 3D inspection will be key for propelling the manufacturing industry forward. Although 3D inspection has been around for a while, the benefits have been limited which has impeded widespread adoption. Yet as the complexity of items increases, with more subtle faults to spot, 3D inspection can offer a quick and repeatable option requiring non-specialist skills. Using readily available high resolution cameras also means that the equipment is low cost and easily available.



Many industries have already benefited from 3D automation technologies to improve processes. Take sport for example, where Hawk-Eye is now an integral element of officiating and enhancing the viewer experience. Manufacturing can learn a few lessons from other industries such as sport, military and policing on the application of 3D technology.

Roke created Hawk-Eye, a complex computer system originally implemented in 2001 for television purposes in cricket but now used officially in numerous sports such cricket, tennis and football. The system works via six (sometimes seven) high-performance cameras, normally positioned on the underside of a stadium roof, which track a ball from different angles.

AUTOMATION AND THE EVOLVING JOB MARKET

It's not only in manufacturing where automation will have an impact. Automation is set to have a profound effect on the types of jobs that are available in the future, according to an MIT technology review. Since at least the 1980s, computers have increasingly taken over such tasks as bookkeeping, clerical work, and repetitive production jobs in manufacturing—all of which typically provided middle-class pay.

At the same time, higher-paying jobs requiring creativity and problem-solving skills, often aided by computers, have proliferated. The same can be said for low-skill jobs: demand has increased for restaurant workers, janitors, home-health aides, and others carrying out service work that is nearly impossible to automate.

The growth of automation will also lower the barrier of entry for many jobs that have traditionally needed a lot of up-front investment. This impact has already been felt by the creative industries, which have undergone a revolution enabled by technology. For example, journalists used to require a complete film crew to generate the simplest of content, but today a journalist can turn up with a high-quality camera and set up. Using nothing more than their laptop, they can edit the content, overdub sound and produce a polished final product.

Advancements in 3D printing, Artificial Intelligence, Intelligent Sensing and Robotics will bring about similar revolutions in product design and manufacture. Small companies will be able to produce the same quality output that would have previously required large investment in tooling, machinery and professional engineering skills, giving rise to a new era of cottage industries.

Just like in the world of industrial inspection, the future will also likely see many other skilled jobs suddenly being opened up to lower-skilled workers. For example, Roke's work with unmanned aerial vehicles eliminates the need for a highly-skilled pilot and instead requires humans to programme the destination of the drone, which is an essential but much less technical task.

Roke is at the forefront of developing new infrastructure technologies for autonomous vehicles and has created the world's first unmanned aerial vehicle (UAV), capable of landing autonomously on a moving ship using vision technology.

Taking a negative view of automation does nothing but scaremonger and prevent progress. We need to assess the potential of emerging technologies and accept that we may need to shift our thinking, assess the risks, adjust our skills and create new opportunities to prosper from all the benefits that automation can bring.