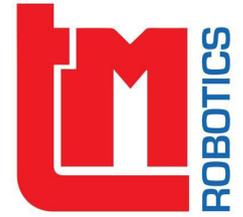


# POLITICS



# OF AUTOMATION



**DON'T FEAR**

THE MACHINE  
ECONOMY

**TAXING**

TECHNOLOGY

**INDUSTRY 4.0:**

IS IT WORTH  
THE INVESTMENT?

**STEPS TO**

THE SMART  
FACTORY

**Conversations on industrial software, automation and robotics are no longer confined to the factory walls. What does an increase of industrial automation mean for manufacturers, the public and the economies of countries that embrace this technology? TM Robotics reports on the rise of the machine economy and the social, economic and political concerns it brings.**



# DON'T FEAR THE MACHINE ECONOMY

Looking to the past, changing perceptions of the present and manufacturing the future

In January 2018, the World Economic Forum (WEF) released its first *'Readiness for the Future of Production Report'*. It outlines how well-positioned economies are to benefit from Industry 4.0. However, much of the news that has been generated since its release has focused on job losses caused by automation, rather than its potential.

Since the first robotic arms were introduced to automotive production lines in the 1960s, the media has been awash with headlines deeming the rise of robotics as the demise of human workers. But, if we look to the past, this situation is familiar.

Nearly 500 years ago, Queen Elizabeth I denied a patent for an automated knitted invention, believing the machine would deprive young women of employment. Regardless of the lack of patent, factories adopted the machine in a bid to up their productivity and generate higher profits. Today's scenario isn't much different.

According to last year's Annual Manufacturing Report, a significant majority of manufacturers are undertaking or considering a move to Industry 4.0, by investing in intelligent automation software, connected hardware and robotics. The same report cited that an increase in production was the main benefit manufacturers expected to gain from automation and only 27 per cent saw it as a method to reduce staff.

***“More than ten million jobs in Britain could be replaced by robots in the next 15 years with those working in manufacturing industry among the highest at risk”***

Despite this, media coverage continues to focus on the threat automation poses to jobs. According to a widely-publicised report by PwC, more than ten million jobs in Britain could be replaced by robots in the next 15 years with those working in manufacturing industry among the highest at risk. There is no denying that automated technology will change the role of employees in manufacturing, but that doesn't necessarily mean the technology will replace human workers.

Take the Elizabethan knitting machine as a case study. The equipment had been adopted by the majority of Britain's textile factories by the end of the 19th century. Using the machine, each human worker could manufacture 20 times the amount of fabric they would have weaved manually. However, despite an increase in automated equipment, these factories employed four times as many workers as they did a century earlier. So, how does this work?

A manufacturer that saves money on labour by using automation has two options. Lower their prices or generate more profit — both of which can result in increased investment, higher demand and in turn, more opportunity for employment. Amazon provides a modern example of this phenomenon. In just three years, the company increased the number of robots in its warehouses from 1,400 to a colossal 45,000. During the same period, the rate at which the company hires workers stayed the same.

There have been plenty of efforts to highlight the potential advantages of automation to jobs, like the comments made by Labour deputy leader, Tom Watson, in the *Future of Work Commission*. The commission acknowledges that while some technology may threaten jobs, when investment is sensibly targeted, this technology has the potential to reverse the country's economic decline, creating just as many jobs as it destroys.

Britain's Government has collaborated with industry leaders to improve the country's attitude on automated technologies, with the creation of the *Made Smarter* review in October 2017.

***“A greater uptake of these technologies could create 175,000 new jobs in the next decade, thanks to a 25 per cent productivity boost in the sector”***

*Made Smarter* answers Government calls to boost productivity in manufacturing by embracing industrial digitalisation technologies (IDTs) — including robotics, automation and intelligent control software. The review promises to recapture the country's industrial spirit as a nation of 'creators and makers'. It also suggests that a greater uptake of these technologies could create 175,000 new jobs in the next decade, thanks to a 25 per cent productivity boost in the sector .

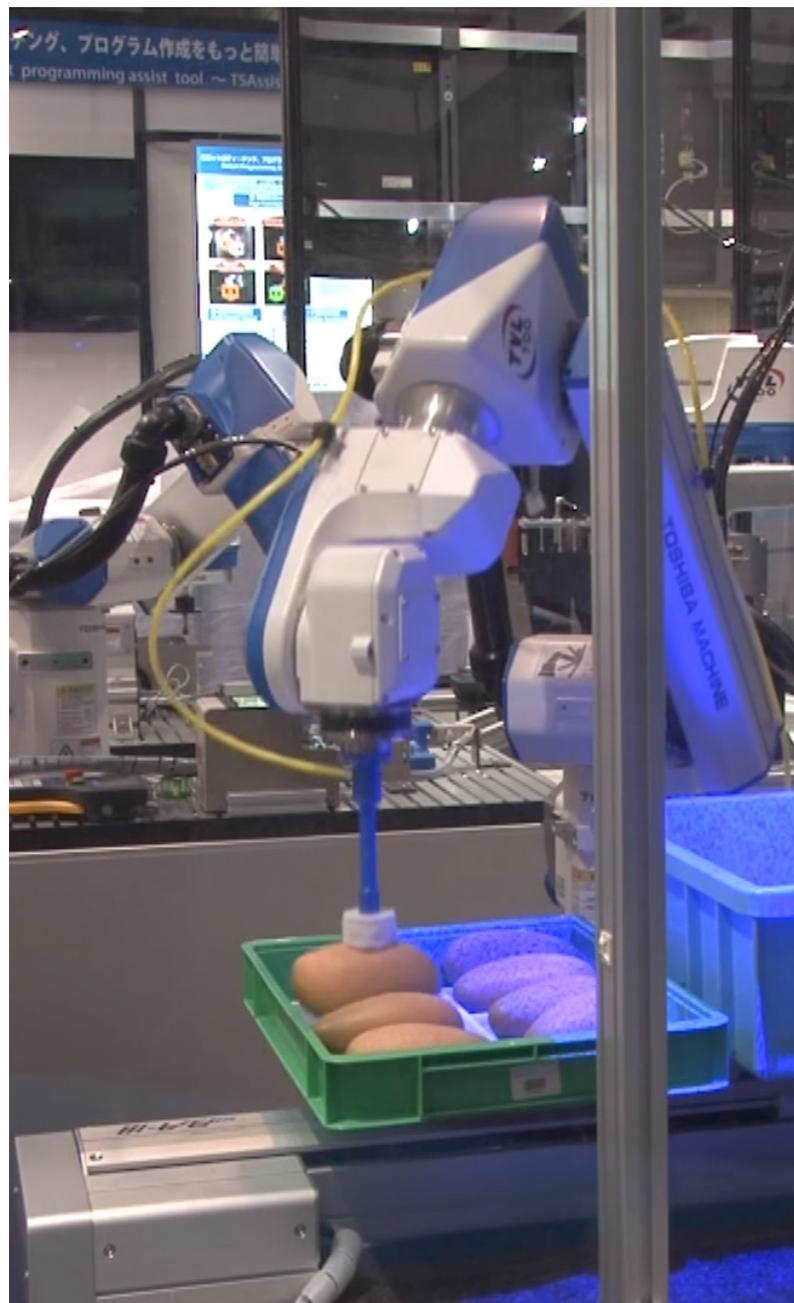
Industry 4.0 will force a shift from labour-intensive production, to knowledge and skills intensive production. Rather than overseeing menial and repetitive manufacturing tasks, like pick-and-place, inspection and assembly processes, factory floor workers will be freed up to manage tasks that require skills, which automation cannot replicate — like human ingenuity, creativity and judgement.

As demonstrated by the uptake of weaving machines in the 19th century, the threat of job losses will not deter manufacturers from investing in automation. In fact, to remain competitive in the global landscape, embracing new technologies is necessary. However, to offset the displacement of menial jobs, manufacturers must invest in the creation of higher-paid, higher-skilled

jobs — not only to manage the increased productivity of their factory, but to help make intelligent decisions related to automation.

According to the *Readiness for the Future of Production Report*, the United Kingdom is one of the 25 countries assessed to be in the best position to benefit from Industry 4.0. To maintain this leadership, manufacturers must contest the scaremongering statistics and negative media coverage associated with job losses and automation.

Robots and automation are not here to take jobs, but to create better ones.





# TAXING TECHNOLOGY

What's the future of robot taxation?

There's been plenty of debate about introducing taxes on automation and robotics but slowing down the machine economy would lead to a productivity disaster.

The world's first robot tax was introduced in South Korea in 2017. The tax was created amid fears that a rise in automation and robotics was threatening human workers and could lead to mass unemployment in the country. But, this so-called robot tax was not actually a tax at all. Instead, the country limited tax incentives for investments in automation, lessening the existing tax breaks for automation.

Calling it a tax was simply rhetoric delivered by its opponents. Essentially, it was just a revision of existing tax laws. Regardless of its name, South Korea's announcement sparked several debates as to whether a robot tax would be advantageous in other countries.

At the time, Bill Gates famously called for a technology levy, suggesting that a tax could balance the Government's income as jobs are lost to automation. The levy was suggested to slow down the pace of change and provide money for Government to increase job opportunities in other sectors.

### **Fewer workers, fewer tax contributions**

While most manufacturers and those operating in the robotics sector would disagree with the idea of a tax on robots, the debate does raise questions of how countries currently tax employment—and how technology could affect this.

The obvious fear at government level is that if we replace people with robots, we reduce national insurance contributions, lessening a government's ability to support its people.

As an alternative, perhaps the answer to this problem is switching to a system where, rather than paying tax per employee through national insurance contributions, NIC was



formulated based on a company's overall operating costs. Using this method, NIC could take account of the impact of all forms of advanced technology, not just robots.

That being said, we are not tax experts — we're experts in robots. TM Robotics sells industrial robots to manufacturers across the globe and advise them on how robots can increase productivity, efficiency and in turn, create new jobs.

Much of the debate about the potential robot tax has focused on the threat that robots and automation pose to humans. However, we should remember that robots don't always replace a human job, often they work alongside people to reduce the risk of injury — particularly in the supply chain.

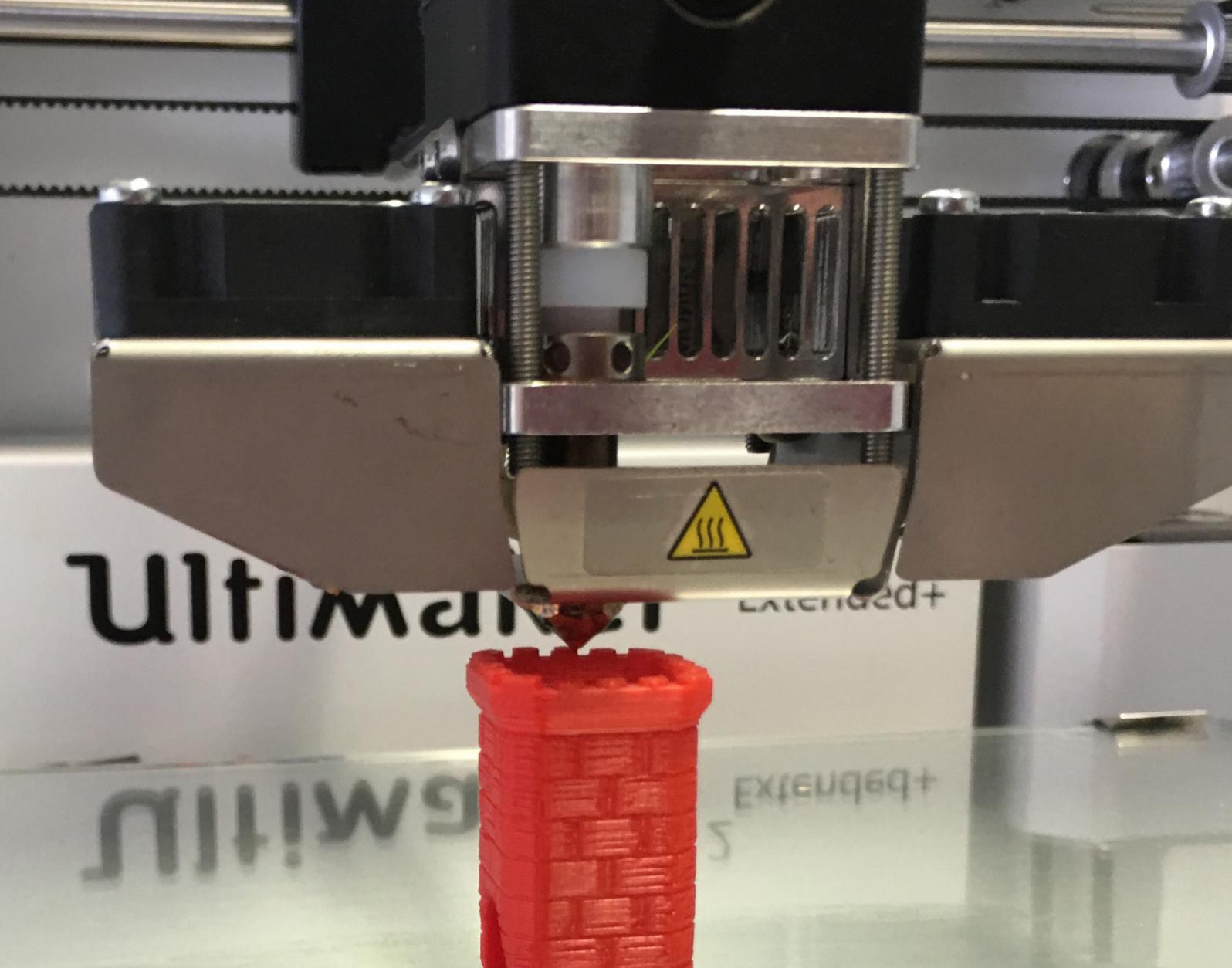
Consider this as an example. TM Robotics recently introduced a robot box opening cell to its range of industrial equipment. This type of automation would typically to be used by companies like DHL and UPS who are delivering product directly into manufacturing plants and retail warehouses to allow them to reduce the risk of injuries from knives. In this instance, a robot tax would undermine a company's ability to deliver a safe environment for its workers.

Robots are tools and they will create work, especially new kinds of work — taxing them would be a tax on net job creation. Instead of implementing a tax on robots, we should actually be providing tax breaks for companies investing in robotics.



# INDUSTRY 4.0: IS IT WORTH THE INVESTMENT?

Don't believe the automation hype



**H**ighlighted in the British Government's *Made Smarter* Review, industrial digitalisation technologies (IDTs) are transforming the manufacturing industry — that's artificial intelligence (AI), 3D printing, intelligent software, virtual reality and cutting-edge robotics. Despite the hype, manufacturers in Britain shouldn't blindly invest in IDTs and instead, should use *Made Smarter* to make smarter automation investments.

The review, previously known as the Industrial Digitalisation review sets recommendations to help meet Britain's goal to become a world leader in the Fourth Industrial Revolution by 2030.

***“Greater uptake of IDTs could represent as much as £455 billion growth for manufacturing”***

A key suggestion is to encourage investment in industrial technologies. The review found that a greater uptake of IDTs could represent as much as £455 billion growth for manufacturing in the next decade increasing productivity by 25 per cent.

As a distributor of industrial robots, and partner of Toshiba Machine, TM Robotics has a vested interest in Britain's manufacturers and their investment in industrial automation. However, that's not the only reason we're backing the *Made Smarter* review.

Inside and outside the factory walls there are already around 6.4 billion data-communicating objects — and this number is growing exponentially. Innovations in fields like AI, software and robotics are all individually significant to Britain's productivity. However, it's how manufacturers choose to use these technologies that will really set Britain on the path to reaffirming itself as a worldwide industrial leader.

***“55 per cent of distributors stated that the dawn of the so-called fourth industrial revolution is influencing how customers choose industrial robots”***

We don't believe that every manufacturer needs a fully automated factory, nor is it essential to invest in additive manufacturing, cutting-edge software or embark on an entire system overhaul to make a factory 'smart'. According to TM Robotics' Global Robotics Report, 55 per cent of distributors stated that the dawn of the so-called fourth industrial revolution is influencing how customers choose industrial robots. But should investments in automation be made according to an industry trend?

There's no denying that investments in automation can reap incredible rewards, but it is vital that manufacturers are investing in

the right kind of technology, not just the shiniest toy at the trade show.

64 per cent of manufacturers said their greatest area of concern when implementing connectivity was that initial development costs were too high. Often, manufacturers overthrow existing systems with the delusion it lacks the functions required for smart manufacturing. However, a complete system overhaul is not necessary.

Investing in industrial automation is important, but it is vital that manufacturers assess their hardware needs before investing in unnecessary technology.

Take collaborative robotics as an example, much of the hype surrounding the technology focuses on the robots' ability to work without robotic work cells. But, does this really enhance your manufacturing operations? For some manufacturers, collaborative robotics could be an intelligent investment, but following the latest trends in automation it isn't always the right investment for all.

An average manufacturing facility will encompass an array of equipment, ranging in age, original equipment manufacturer (OEM) and the communication standards used. To enable smart manufacturing, hardware must be able to communicate with each other, but this can be difficult to implement. In fact, 39 per cent of manufacturers that admit that they are struggling to successfully implement their smart manufacturing initiatives.

The transition to smart manufacturing is never simple, but manufacturers should always explore all options before disregarding the process as 'too expensive'. For example, choosing process control software that is hardware-independent — or can operate on several different

communication protocols — can eradicate the need to invest in an entirely new hardware system.

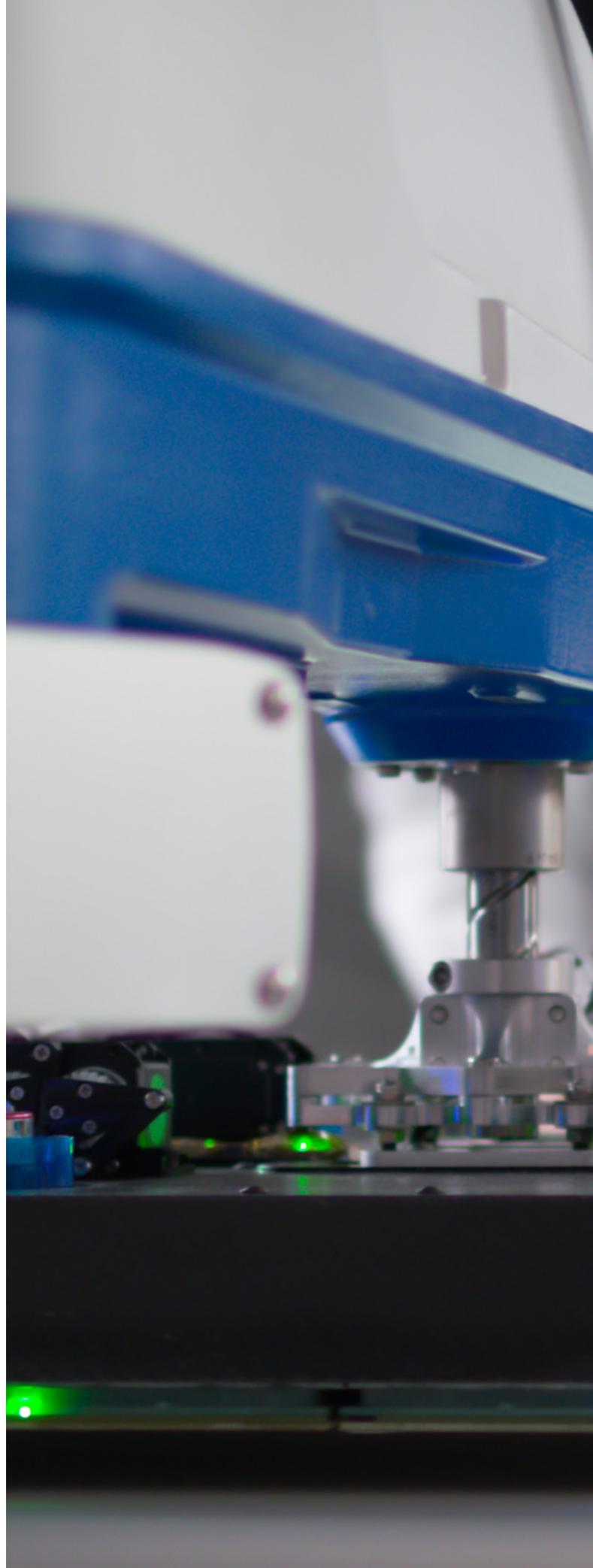
Instead, a smart manufacturing strategy should be put in place before any financial outlays are made. Manufacturers should carefully consider what they wish to achieve from the investment and make buying decisions based on these goals.

Electronic goods manufacturers, for instance, may prioritise fast speeds and high levels of accuracy to compete with cheaper manufacturing economies. For these manufacturers, investing in a SCARA robot with high levels of accuracy and repeatability would be ideal, particularly for pick and place functions.

Unlike the process of a systems overhaul, the installation of a SCARA robot should not result in long periods of downtime — particularly when using an experienced systems integrator. In fact, TM Robotics installed a Toshiba Machine TH350 SCARA robot for an Irish manufacturer of minute circuit breakers in just one weekend.

Without doubt, investing in hardware can reap significant productivity and efficiency benefits for manufacturers when implementing Industry 4.0. However, there are simpler ways to update hardware and improve processes than investing in an entirely new system.

Despite initiatives like the Made Smarter review focusing on heavy investment in automation technology, there's no one-size-fits-all smart factory. However, there are ways for manufacturers to invest in industrial automation and robotics to build a more effective facility.





# STEPS TO THE SMART FACTORY

Whats next?

---

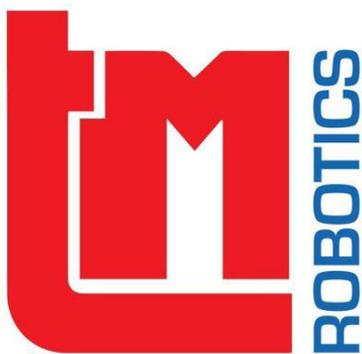
Industrial automation and robotics is no longer a conversation kept inside the factory walls. Today, manufacturers, governing bodies and the public alike are interested in how these technologies will impact global productivity and in turn, the future of work.

For manufacturers, the first step on the road to the smart factory is to consider how automation will benefit you. It's not about investing in the shiniest new technology, overhauling your entire system or replacing the workforce with a team of robotic counterparts. Instead, you should speak to the experts in automation.

TM Robotics has installed thousands of robots in factories around the world, including North and South America, India, Russia, Europe, the Middle East, Africa and Australia. In fact, many top manufacturers depend on TM Robotics' product offerings to automate their processes.



Discuss your automation goals with member of the TM Robotics team. You can reach the European head office by calling +44 (0) 1707 290370 or sending an e-mail to [sales@tmrobotics.co.uk](mailto:sales@tmrobotics.co.uk).



TM Robotics Ltd,  
Unit 2, Bridge Gate Centre,  
Martinfield, Welwyn Garden City,  
Herts, AL7 1JG

**Telephone:** +44 (0) 1707 290370  
**Website:** [www.tmrobotics.co.uk](http://www.tmrobotics.co.uk)  
**E-mail:** [sales@tmrobotics.co.uk](mailto:sales@tmrobotics.co.uk)