

Achieving ROI with robotics

A roundtable discussion

The benefits of robotics are quite compelling: improved productivity, efficiency, output, quality, and flexibility. In addition to their production benefits, they can improve health and safety and job satisfaction for employees.

However, the uptake of robotic systems could be higher, both with our customers and more widely across the UK. The International Federation of Robotics (IFR) World Robot Report in 2021 found that the UK has a robot density below the global average of 126 robots per 10,000 employees, and ranks 24th in the world in terms of robot density.

The global leader is the Republic of Korea, which has 932 robots per 10,000 employees, Europe's most automated country, Germany, has 371 robots per 10,000 employees, while the UK has just 101 per 10,000 employees. So why is our uptake behind other nations?

One possible barrier to robotics is a lack of understanding of return on investment (ROI) and concerns about upfront cost.

To explore the UK's productivity puzzle and discuss how the UK's manufacturers can achieve ROI on their robot purchases, we brought together our team and a leading robotics expert.

The roundtable included:

Mike Wilson

Chief Automation Officer at the
Manufacturing Technology Centre

Peter Swanson

Managing Director

Ben Swanson

Chief Commercial Officer

Kevin Brownsill

Head of Technical: Learning & Development



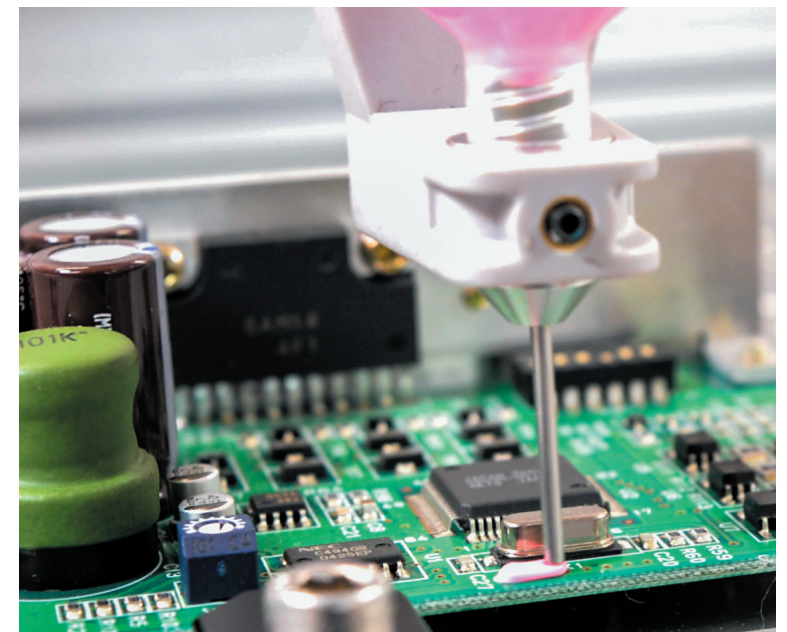
Why is the UK behind on its robotics uptake?



MW: There are many factors at play here, rather than a single stand-out cause. Partly, it's cultural. If you walk into a factory in Germany, they'll proudly show off their new machines. In the UK, it's the opposite. The plant manager will show how their trusty system has been operating for 20 years, sometimes more.

PS: In addition, there can be a fear of changing production processes. There may be some concern amongst operators that robots will replace their jobs, or result in them having to learn their trade all over again. This is less prevalent in younger generations, however, who are more familiar with automation and programming.

BS: I think many small businesses are unsure of how accessible robotics is. Larger businesses may be more confident with robotics, but lots of smaller businesses are yet to automate. Some people may just generally feel robots aren't right for them, it's either too difficult, expensive, or are worried about what could happen if the technology breaks down.



What market factors are driving an increase in the uptake of robots?



PS: Covid, war in Ukraine, Brexit, and even a boat getting stuck in the Suez canal, have all impacted the way we do business. Across a number of industries, supply chain problems are making it more difficult to source raw materials and components.

According to the IFR, after two years of declining robot installations globally in all major industries, numbers began growing again in 2021. Across Europe, installations were up 24% to 4,302 units in 2021, a new peak. However, in the United Kingdom, industrial robot installations were down by 7% to 2,054 units.

MW: As a result of the market conditions, we're seeing a lot more companies reshoring their manufacturing operations, as well as working with local suppliers rather than sourcing from overseas.

According to a survey by Make UK, three quarters of companies have increased the number of British suppliers they are using. The breakdown of critical just-in-time supply chain processes mean companies are turning away from cheap production in Asia, and instead looking closer to home.

KB: An important factor here is the availability of labour. The UK is facing a high number of job vacancies, so, when manufacturers can't recruit, they may begin looking at alternative methods of production.

According to the Office for National Statistics (ONS), the number of job vacancies in the UK rose to a new record of 1,300,000, an increase of 20,000 from the previous quarter and an increase of 503,900 from pre-pandemic levels.

KB: In addition super deduction is incentivising many businesses to invest in capital equipment now.

Until March 2023, companies investing in qualifying new plant and machinery assets can claim a 130% super deduction, which will allow companies to reduce their tax bill by up to 25p for every £1 they invest.

BS: All of these factors have impacted the industry's perception of risk. Where they may previously have seen an upfront investment in robotics as high risk, two years of Covid have completely changed the mindset of many business leaders as to where the risk is in their businesses.

What can the industry do to improve robotics uptake?



MW: There is a narrative about robots taking jobs, but they actually create them –competitive companies grow and employ more people.

But this preconception means it's absolutely vital for businesses to sell the idea of robotics to the workforce and get buy in. The team must believe that robotics is a good thing for them.

PS: I think the cultural issue is difficult to fight, as there are so many prior stories reinforcing that narrative.

In addition, there is work to be done on educating the market on how to approach ROI. We're working with engineers to help them understand it more deeply to help with justifying the cost to the rest of the business. Not only can the ROI be quick, you also have a very short Time To Value (TTV) – almost immediate in most cases.

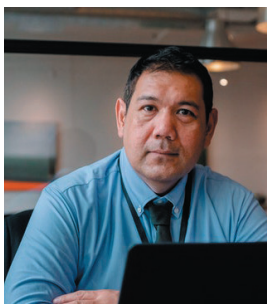
KB: It can help to share case studies of where robotics have worked well. In many cases, we offer a reasonable price point that offers a short payback period. We also offer systems in a way that means they could be reprogrammed and used for something else, so the opportunity to increase ROI is huge.



Building an ROI equation



We then discussed an ROI worked example, to see how our conversation would look in practice:



"I am the Managing Director of an electronics CEM. We are making 1,000 potted electronics assemblies per week, regularly 200 per day. This is done manually by experienced operators. Pat is my best operator, she's been with me the longest time.

Some weeks, about 2.5% of these are rejected after potting. Each one costs £50, so I am losing £1,250 that week. The potting compound has to be mixed by hand, and dispensed into the assembly without voids or bubbles. It's a bit of a messy and tricky job, in an area of the factory I'm not proud of.

Sometimes I have capacity problems, when the operators, especially Pat, are on holiday or sick. I worry about Pat, as she has talked to me about cutting down her hours or retiring. It would be better if I could de-skill this operation, and so take some risk out of it.

If I invested £30,000 - £40,000 in a robot that would mix the potting material and apply it automatically, we could get through all 1,000 units in half a day each week. We would still need an operator to load/unload the robot, but that could be done with someone less experienced. We think that the reject rate would go down to about 1% (and with work we could get it lower as we reduce the process variables). There would be less handling of the chemicals, which would be better for the health and safety of my team.

Installing this automation would allow us to reallocate 4.5 days per week on labour to something more useful, saving us about £35,000 per year in labour overhead on this assembly. With the savings on rejects of about £20,000 per year, a really simple ROI sum says that we would pay off the investment in less than 12 months.

Our customer for this product has been making noises about raising the quantities from 1,000 to 10,000 per week. If that happens, we would need to hire nine more people and train them, but in this labour market, that will be really difficult. I need to keep the people I have by giving them less monotonous, more engaging work. So if we get the increased order, we would have to make the robot investment. However, I am worried that we won't get the job unless we get our reject rate down. One of my competitors has some of its robots pictured on its website, which makes it look really professional and up to date. Raising our image and brand would be another benefit of investing in automation, although it's a bit more difficult to put a number on the financial value.

In conversation with our dispensing supplier, I realised that this level of automation costs much less than I thought – less than my new car! I think we can justify the cost through a fast ROI, deskilling some jobs, motivating our workforce, upping our image, and reducing risk both commercially and in production."

Customer example: DD Scientific



We supplied gas sensor manufacturer DD-Scientific with several preeflow® eco-DUO precision metering, mixing, and dispensing systems, and integrated them with Fisnar dispensing robots.

*With the new equipment, DD-Scientific can deposit the right amount of metered and mixed epoxy, in the right place, every time, improving productivity while mitigating the rate of failure. With a throughput of 1.5 million sensors a year, all with a minimum of two pins to seal, **the time saved by removing the manual processes equates to 23 days a year.***

Customer example: Venta Global



VENTA

We worked with automotive and marine lighting product manufacturer Venta Global to develop a form-in-place gasketing process. The technology supplied by Intertronics **increased throughput fourfold**, while being highly accurate and repeatable and reducing operator health and safety risks.



BS *“The cost of robots is not prohibitive. We have some for as low as £5,000 base price. It can be done as a process of incremental improvement, it doesn’t have to be an entire system overhaul.”*

MW *“You can achieve ROI without running a robot 24/7. In fact, many robots can be run as and when needed and still deliver value through faster output and better quality.”*

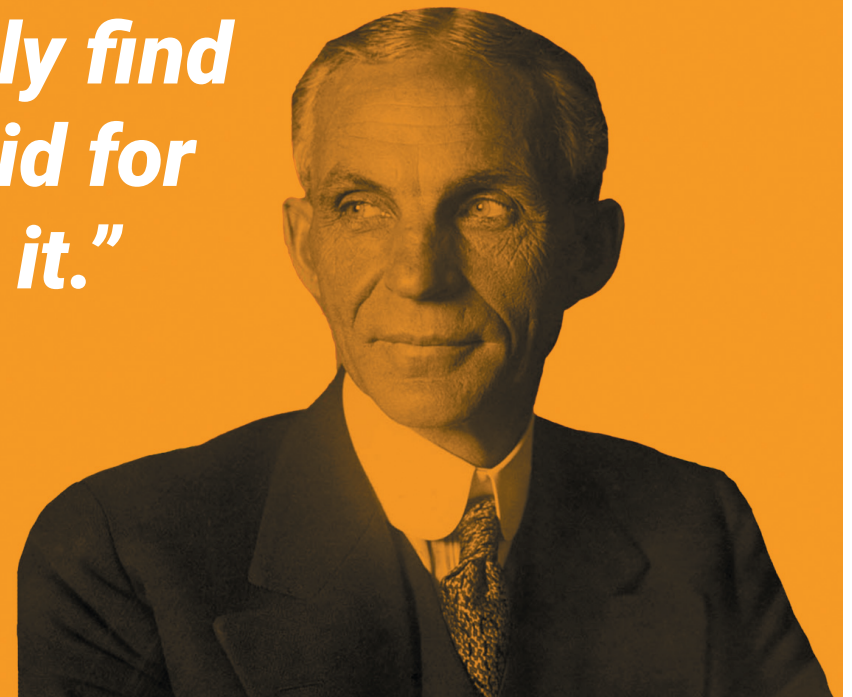
KB *“It’s not as risky as you think. A reliable supplier can help you throughout the process, helping build your confidence and prove the technology works, greatly reducing the risk.”*

PS *“Robots automate tasks, not jobs!”*



***“If you need a machine
and don’t buy it, then
you will ultimately find
that you have paid for
it and don’t have it.”***

Henry Ford



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