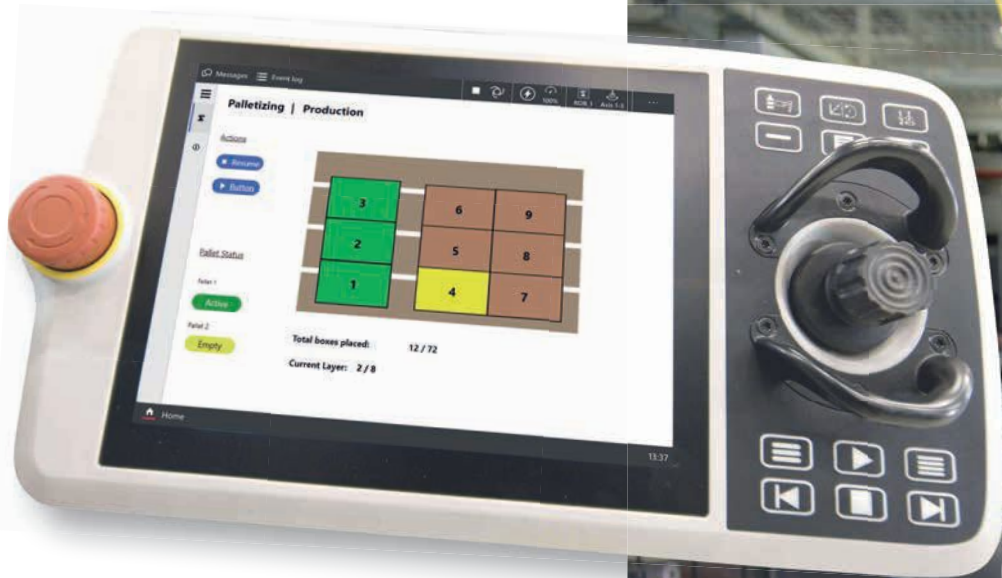




*Right: AppStudio from ABB is an intuitive, no-code software tool that its maker says is "designed to revolutionise robot integration"*



Discussions around automation have long featured the complaint from naysayers that greater automation will lead to fewer jobs for humans. But when it comes to manufacturing, the current skills shortage means that the problem is actually that of fewer (qualified) humans for jobs.

"Automation can play a key role in bridging this skills gap," believes Paul Coombes, head of Technical, Fanuc UK. "Robots represent the perfect replacement for hard-to-find manual workers in dull, dirty and dangerous tasks. Not only are robots more consistently accurate than a human worker – and able to work 24/7 even in the dark and without requiring a break – but they also enable manufacturers to make better use of the human employees they do have, upskilling them to boost

recruitment and retention rates while increasing overall productivity."

That latter point furthers the selling point for a robotic helping hand. "There is no doubt that when it comes to manufacturing, automation boosts productivity," states Coombes. "The use of robots helps manufacturers to remain agile, cost efficient and globally competitive. Statistics consistently show that among the most productive manufacturing nations, automation rates are above average."

Fanuc itself offers a wide range of industrial robots, robots for collaborative applications and robo-machines (such as the Roboshot all-electric injection moulding machine) designed to suit manufacturers across all sectors.

Coombes says that real-world applications include increasing production efficiency in the aerospace industry. "Over the past five years,



# Collaborative effort

**Louise Davis meets the specialist providers who are delivering automation solutions designed to improve productivity in manufacturing and that can also contribute to tackling the sector's skills gap**



Left: Paul Coombes,  
head of technical,  
Fanuc UK



we have supported Airbus with its in-house robotics strategy, culminating in Airbus developing a robotic drilling system that employs a Fanuc M-800iA/60 six-axis robot.

"The system has improved drilling accuracy and increased productivity for Airbus, while freeing up human employees to work on more creative and value-added tasks," Coombes reveals.

#### **AUTOMATION LIBERATION**

Echoing the point about robotic solutions offering greater freedom and flexibility, Julian Ware, UK & Ireland sales manager at ABB Robotics, observes

that, "Robotic solutions can often be used to augment the performance of a business's existing workforce, either by directly assisting employees or by releasing them from low-value work to perform higher level tasks."

Expanding on that, Ware says: "Taking welding as an example, we have recently launched our collaborative robot-(cobot) based welding package to help automate welding tasks. The package can be used safely alongside manual workers, enhancing their productivity and releasing them to carry out higher level activities."

Highlighting a prime application

*Above: Far from fearing for their jobs, Kuka Robotics says that the younger generation of engineering experts is receptive to automation technology*

of such technology, Ware adds: "The benefits that our welding cobots offer are seen in a recent application for Finnish metal fabricator, Lankapaja. Faced with a shortage of welders to carry out work at its Swedish factory, the company is using two GoFa cobots to perform welding tasks on its component welding station alongside its manual operators.

"As well as increasing capacity and ensuring consistent high quality, the







▶ cobots have also helped Lankapaja free up staff for other tasks, as only one person is needed to supervise both robots."

Another example can be found at German machining company, Metec. Ware reveals: "In this application, a GoFa cobot is being used as part of an automated machine tending cell to load and unload CNC machine tools with raw and finished components.

"Like many other companies, Metec has been struggling to find skilled workers. By using automated solutions to take over repetitive and routine machine-tending actions, workers can be released to handle more demanding tasks."

Ware also points out that ABB is heavily focused on reducing complexity: "With many manufacturers expressing concerns about the perceived complexity of robots and a lack of trained

*Above: German machining company Metec relies on cobots from ABB Robotics*

staff to program, operate and manage them, we have worked extensively on developing solutions to help remove the skills barrier to robotic automation.

"The GoFa cobot, for example, incorporates a lead-through programming feature that enables the operator to quickly and

*Right: Julian Ware, UK & Ireland sales manager at ABB Robotics*



## WASTE MANAGEMENT SCHEME

The ability of robots to achieve 'right first-time' production can have a major impact on reducing waste in manufacturing processes, says ABB's Julian Ware. "Through accurate and consistent performance, robots can play a major role in helping to minimise production errors that can arise in manually based production through factors such as boredom, repetition or fatigue," he explains.

"They can also make a significant contribution to companies looking for ways to make their operations more sustainable. In manufacturing processes, this can include using the inherent flexibility of robots to rethink existing processes – whether it be in terms of how a product is made, or, when it comes to the end of its life, how its constituent parts can be reused."

Ware also highlights how robots can be used in 'design-for-circularity' manufacturing: "This is where products can be designed and assembled in a way that will enable them to be effectively reclaimed and recycled at the end of their life."

easily create an operating program by moving the robot arm into the required positions. This is also supplemented by our Wizard Easy Programming software tool, which uses 'drag and drop' block-based programming to create entire operating routines, eliminating the need for operator to learn programming code," confirms Ware.

## COST BENEFIT ANALYSIS

As well as concerns regarding complexity, Julian Dixon-Smith, technical sales support engineer at Kuka Robotics, has noticed another common

apprehension when discussing robotic automation with new customers: that of the price tag.

"However, the technology is now highly developed, and the investment required to automate a process is relatively low, considering the positive impact it can have on productivity, with a reasonably short payback," he explains.

"We also find that manufacturers usually want to try and automate complex operations first, rather than prove the technology by automating simpler end-of-line tasks, such as packing and palletising. So, we advise





*Left: A range of robots from Fanuc*

*Below: Julian Dixon-Smith, technical sales support engineer, Kuka Robotics*

development teams to collaborate easily from anywhere and have an input at every stage of the product or solution design process."

#### INTELLIGENT INPUT


Dixon-Smith is also keenly observing how AI technology is developing, and he feels it will play a considerable role in endowing machines and robots with intelligence: "We are already seeing machine learning using improved algorithms starting to be

tested in robotics and deep learning technology being implemented in machine vision, for example. This will make robots even easier to program and use, therefore providing new areas and possibilities for automation technology to be utilised," he believes.

And in the short-term? "In the next 12 months we can also expect to see AMRs being used more widely to move raw materials to the production line and finished products into the warehouse, thus improving material handling and manufacturing logistics efficiency," Dixon-Smith confirms.

Fanuc's Paul Coombes predicts greater adoption in the coming months. "The technology is already here. Today's automated solutions are smart, agile, precise, consistent and reliable," he says.

"What we now need is greater commitment from manufacturers to invest in these technologies. A focus on total cost of ownership (TCO) rather than initial purchase price will help, as will a more stable economic environment.

"Access to finance is also improving, with options such as hire purchase and rental making it easier than ever before for SMEs to commit to automation." 

them on which part of their operations would offer the fastest and best return on investment, and work with them and our system partner integrators to achieve a successful result, before moving on to tackle more complex applications.

"In this way we can gain the trust of the customer in the equipment and in us and our partners as reliable and knowledgeable suppliers."

Kuka Robotics offers industrial robots

He comments that, "Robots are seen as more accessible than previously. There are now more low-cost automation solutions available, and a younger generation of managers, engineers and decision makers are far more receptive to automation technology. So, a greater range of robot applications are now being embedded in companies."

Widespread adoption is encouraging



## "The use of robots helps manufacturers to remain agile, cost efficient and globally competitive"

*Paul Coombes, head of Technical, FANUC UK*

in a wide range of versions with various payload capacities and reaches, plus a growing range of autonomous mobile robots (AMRs).

The company's product portfolio also includes the appropriate robot peripheral equipment – from linear units to end effectors. This broad range of solutions reflects the rising customer demand; Dixon-Smith says that robot investment is rapidly growing, as labour shortages force firms to investigate automated solutions, especially in the food manufacturing, packaging and fast-moving consumer goods sectors.

but automation technology has not peaked yet. What does Dixon-Smith feel is still to come? "Smart services that support the core robots are now very important, and our R&D team is constantly working to improve these even further," he answers.

"Simulation and 'digital twinning' are also beginning to make a real difference to the design and manufacturing process. Using a tool such as KUKA Sim is a way engineers can save time and costs by developing a product or solution in a virtual environment before commissioning. It also allows