Robots – why not?

The UK has for many years been a poor example when it comes to robot take-up by manufacturers. Stirling Paatz of Barr & Paatz revisits the topic, updating it for today's demands

Against a backdrop of global competition, the need for efficient and flexible robotics technology has become a key consideration for many manufacturing businesses. That explains why the annual market for industrial robots surged by 30 per cent in 2005, according to figures from the International Federation of Robotics (IFR), while a new ARC Advisory Group study predicts that the global robotics market will hit over $5 billion by 2010.

And market growth is not coming from traditional robot users, the automotive and electronics industries, but from small and medium-sized businesses in industries like food and packaging, plastics and rubber, pharmaceuticals, household appliances, and even wood and furniture. In these sectors, requirements for more flexible manufacturing processes and shorter product lead times, allied to rising labour costs and stricter health & safety legislation, have triggered investment in the speed, precision, repeatability and versatility of industrial robots.

Robot technology has undergone rapid change over the past decade or so: a robot today would cost less than a quarter of one bought in 1990 with equivalent functionality. Installation footprints are smaller, working envelopes greater, operating noise levels lower, programming and interfacing with other systems easier, and meantime-between-failure rates are 200 per cent improved. A properly maintained robot can give an average 15 years' service life, according to an IFR pilot study, with perhaps five years between minor breakdowns. Payback now being in the region of 2-4 years, even less when factoring in double shifts or 24/7 operation. And at ±0.02 mm repeatability, a robot can perform meticulous functions that a human could not expect to achieve, time after time, with no breaks or lapsed concentration.

Stirling Paatz, managing director of Barr & Paatz, is an acknowledged expert in robot integration and process automation

Increased throughput, minimal rejects, enhanced quality, reduced production costs and a more flexible manufacturing structure add up to improved market competitiveness for the customer, with goods brought to market quicker, new lines introduced faster and internal economies translated into keener pricing.

Robots could be a realistic alternative to moving production overseas or a solution to the shrinking labour supply affecting global manufacturing. Over the period 1990-2005, when its index of labour costs rose from 100 to 179, USA consistently invested in robots, for example. At around 90 robots per 10,000 people employed, the United States has by no means the highest robot density globally (that's Germany at 171 per 10,000), but it is still more than double the UK figure, a lowly 44.

If this suggests that Britain is seriously lagging behind in a critical area of manufacturing technology, then sadly the statistics indicate a truth. In terms of robot density across all industries, we are behind every major Western industrialised society, except Norway and Portugal. Remove the automotive industry from the equation, where we are comparable with Sweden, and the picture is even bleaker, although there are promising shoots of growth in the UK pharmaceutical, packaging and 'emerging technologies' sectors. Pundits suggest Britain's failure to enthusiastically embrace robot technology stems from a shorter term reward from capital investment required by shareholders, a greater legacy of ageing production machinery and a more traditional engineering heritage.

Whatever the reasons, UK manufacturers should take advantage of falling hardware prices, register the genuine productivity gains that robots can deliver and start actively considering what key processes could be fully automated. Don't ask 'Why robots?', instead ask 'Why not?'□