Future-proofing UK manufacturing
Current investment trends and future opportunities in robotic automation
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Barclays’ Future-proofing UK Manufacturing report is based on analysis by economics consultancy Development Economics and a bespoke survey of British and German business attitudes towards automation conducted on our behalf by YouGov.

Our economic analysis uses a proprietary model to provide a perspective on the potential benefits to the UK manufacturing sector of increasing investment into robotics and automation above current predicted levels of investment. It is based on modelling of Gross Value Added (GVA), i.e. the economic contribution of the manufacturing sector to the wider economy.

The key findings within this report are based on a scenario that assumes further investment among larger manufacturers operating within sectors that have already begun to successfully introduce industrial robots as well as others (particularly medium-sized companies) in the same sectors.

Our economic research is supplemented by insight from a survey of attitudes among British and German manufacturing managers towards automation conducted by YouGov on behalf of Barclays. The total sample size was 639 middle managers and above from the manufacturing industry in Britain and 100 middle managers and above from the manufacturing industry in Germany. Fieldwork was undertaken between 22 September and 7 October 2015.
Executive summary

Additional investment in robotics and automation could have a major positive impact on both UK manufacturing and the wider economy.

UK manufacturing is often accused of underinvesting in robotics and other forms of automation, compared to other developed economies. There has been widespread speculation that this lack of investment could be one factor behind the UK ‘productivity puzzle’.1

The UK was ranked 19th worldwide in 2012 in terms of robot density in the manufacturing sector with a level barely above the global average.2 The UK automotive industry, for example, has been shown to be operating with half as many robots as those used in Germany, regularly cited as the European industry standard-bearer for automation.

Recent data from the Office of National Statistics has highlighted the relatively low levels of productivity in UK manufacturing.3 In April this year, the ONS went so far as to describe the lack of improvement in UK productivity across all sectors as "unprecedented in the post-war period" and suggested that the UK’s productivity gap with major economic competitors was widening.4

To test whether the perception of underinvestment in automation matches the reality on the UK factory floor, Barclays has carried out an extensive survey of manufacturers in Britain and Germany, combined with our own economic modelling of the impact of robotics on the sector.

Survey results paint a more positive picture on automation

Our recent survey of over 700 middle managers and above from British and German manufacturers shows that the British sector does not believe it is lagging behind to the extent that many people may think. Of the British respondents to our survey, over half (58%) say their business has invested in automation. This compares to 66% in Germany.

Furthermore, 68% of British manufacturers see potential for increasing investment in automation in the future, a similar level to that in Germany (71%).

These findings are very much in line with what we typically see on the factory floor across the UK, where examples of businesses that have not invested in automation – at least to some extent – appear to be fairly few and far between.

Those manufacturing businesses that are investing in automation report that they are seeing clear benefits. For example, 65% of respondents say their productivity has increased as a result of automation, while 60% see improved consistency in their product and 54% say automation allows more time for staff to complete other tasks.

“Those manufacturing businesses that are investing in automation report that they are seeing clear benefits.”

“Those manufacturing businesses that are investing in automation report that they are seeing clear benefits.”
It is worth noting, however, that the benefits of automation are available to our international competitors too. While our survey shows that British manufacturers believe they are relatively well invested in automation, most economic data demonstrates that the UK is starting from a lower base level of investment with less penetration across the various manufacturing sub-sectors and down to smaller companies. This suggests that the UK may not yet be on a level footing with nations higher up the international automation rankings and may still have some work to do to catch up.

“Increased automation would not only have a positive impact on output but would also safeguard UK manufacturing jobs in the future.”

Barriers to investment

Although over half of British manufacturers say they are investing in automation, according to our survey, they also identify a number of barriers that are potentially holding the sector back from more ambitious and transformative investment. This may account for the sizeable minority of firms who have not invested in automation or even considered it.

Many survey respondents point to a lack of both internal funds (23%), external grants and other sources of finance (15%). A quarter (26%) say they simply prioritise other capital expenditure projects over automation.

Our economic modelling of the potential future impact of automation investment shows that these barriers to further investment could lead to a significant missed opportunity for the UK.

Quantifying the benefits

Our economic analysis suggests that even a moderate increase of £1.24bn in automation investment could raise the overall value added by the manufacturing sector to the UK economy by £60.5bn over the next decade, compared to anticipated business-as-usual investment levels. This model assumes that the uplift in investment would be primarily among Tier 1 and Tier 2 manufacturers – those closest in the supply chain to the major manufacturers of finished products.

In addition to the direct effects, accelerated investment in automation and robotics would also have an indirect impact on the supply chain and on the wider economy which could be expected to amount to an increase in value to the UK of £2.5bn a year by 2020 and £3.9bn a year by 2025.

Our research suggests that this moderate investment uplift scenario is the most realistic challenge for UK manufacturing to set itself. Further economic modelling of a deeper and more widespread increase in investment, including among smaller companies in the sector, demonstrates less incremental benefit – in other words, the additional benefits of investing in automation are diminished as it is taken up more widely and by smaller companies within the sector. This suggests that managed evolution, rather than attempting to revolutionise the entire sector, should be the order of the day.
Impact on employment and skills

Our economic modelling suggests that increased automation would not only have a positive impact on output but would also safeguard UK manufacturing jobs in the future – and should also have a knock-on benefit in creating jobs in other related industries. This is, again, contrary to the often-held view that increasing automation has a negative effect on the UK’s manufacturing workforce. In fact, our analysis shows it will go some way to mitigating anticipated future job losses in the sector.

Overall gains for the UK economy of our moderate investment uplift scenario, compared to business-as-usual, would be expected to amount to 33,000 manufacturing jobs by 2020 and 73,500 jobs by 2025. Jobs created in other parts of the economy as a result could amount to 14,600 and 32,300 by 2020 and 2025 respectively.

Our survey respondents also suggest that automation can have a positive effect in helping to bridge the widely recognised skills gap in the UK workforce. While 56% say that there is a general skills shortage and this is having a negative impact on their competitiveness and growth, 57% say that increased investment in automation will help upskill their employees.

Overcoming the barriers to further investment

Given the clear benefits of automation demonstrated by our survey, why aren’t UK companies investing more?

More than one third (36%) of respondents believe there is “very little or no support” available to their business when it comes to automation. For example, it seems many companies want more information from suppliers about the role automation can play in improving their businesses (36%).

Survey responses suggest that, while there is help out there for manufacturers, more needs to be done by the government and other interested parties to promote greater awareness of the benefits of automation, and the role it can play in the future success of the country’s manufacturing sector, perhaps through sustained national campaigns.

Our research has been conducted at a time when UK manufacturing may be at a critical turning point, where the current high levels of employment in the UK and difficulties in recruiting skilled people may act as a trigger for greater investment in automation. Failure to invest in the future could expose the sector to the risk of greater potential job losses and make UK manufacturing less competitive in international markets. We hope that our findings raise awareness of the significant potential upside of automation to UK manufacturing and to the wider economy. Perhaps they will prompt a more ambitious investment programme within the sector to fully capitalise on the opportunities presented by automation and robotics in manufacturing.

“Companies want more information from suppliers about the role automation can play in improving their businesses.”

2 World Robotics 2013.
3 www.ons.gov.uk/ons/rel/productivity/labour-productivity/q1-2015/stbq115.html
4 www.ons.gov.uk/ons/rel/productivity/labour-productivity/q4-2014/stbq414.html
Current investment in automation: challenging perceptions

British manufacturers report significant levels of automation, but funding and third-party support appear to be barriers to increased investment.

Our survey shows that 58% of respondents in the British manufacturing sector say their business has invested in automation equipment. A further 13% of businesses say they have considered such investment.

The extent of automation in Britain demonstrated by our survey is perhaps surprisingly high when compared to the results for Germany, often considered to be the leading European exponent of automation in manufacturing, and where 66% of respondents say their business has invested in automation.

UK investment on the up

These findings are consistent with data from the International Federation of Robotics that suggests that, while investment in robotics among UK manufacturers has in the past lagged behind other major industrialised countries, since 2011 investment in the UK has been increasing at a faster rate than most international economies.5

Perhaps a concern for both countries is that this still leaves a substantial minority of manufacturers – 25% in Britain and 21% in Germany – that have not invested in automation to date and not considered it.

Invested in the use of automation/robotic equipment

<table>
<thead>
<tr>
<th></th>
<th>Great Britain</th>
<th>Germany</th>
</tr>
</thead>
<tbody>
<tr>
<td>Used before and still uses</td>
<td>53%</td>
<td>61%</td>
</tr>
<tr>
<td>Used before but no longer uses</td>
<td>5%</td>
<td>5%</td>
</tr>
</tbody>
</table>

Not invested in the use of automation/robotic equipment

<table>
<thead>
<tr>
<th></th>
<th>Great Britain</th>
<th>Germany</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has considered</td>
<td>13%</td>
<td>11%</td>
</tr>
<tr>
<td>Has not considered</td>
<td>25%</td>
<td>21%</td>
</tr>
</tbody>
</table>

5www.ifr.org/industrial-robots/statistics/
Size matters

The responses to our survey demonstrate that the level of adoption of automation is higher among larger companies in Britain. Of those surveyed from companies with an annual turnover of £10m or more, 71% say they have invested in automation. By comparison, just 21% of businesses with an annual turnover of less than £1m have done so.

Combined with our economic modelling, these results suggest there may be an investment ‘sweet spot’ among more established Tier 1 and Tier 2 manufacturers where increasing automation will have the biggest impact. Lower levels of automation among small and medium enterprises (SMEs) may be due to concerns over the costs of the necessary capital expenditure, although the falling cost of robotics technology may make automation more accessible to SMEs in the future.

“71% of companies with an annual turnover of £10m or more have invested in automation.”

Current investment comparison based on annual turnover in Britain

Current investment comparison based on age of companies in Britain

*These figures should be treated with caution due to the relatively small sample size of some of the subsector and geographic data.
Where does automation have the biggest impact?

There are significant differences in levels of investment in automation between the various subsectors of UK manufacturing, according to our survey. Sectors indicating the highest levels of automation are heavy industry (79%), medical devices (79%) and building products (75%). In contrast, just a third (33%) of businesses in the printing and packing subsector have followed suit.*

Our economic analysis also highlights differences between UK manufacturing subsectors. Food manufacturing and pharmaceuticals are expected to have the greatest potential to add incremental value to the UK economy through automation, given the ‘double whammy’ effect of their relative size and importance to the UK economy and their above-average capacity to benefit from additional investment in robotics.

Regional variations

A breakdown of our survey results by region shows that those most likely to have invested in automation are in Scotland (72%) and London (69%). Britain’s automotive manufacturing heartland in the West Midlands returns a 60% positive response to investment (i.e. 60% have invested), whereas the percentage in the South East is 47% and for the East Midlands 48%.*

*These figures should be treated with caution due to the relatively small sample size of some of the subsector and geographic data.
**Barriers to investment**

Lack of funds is identified as a key barrier to further investment in automation in the past 12 months by our survey respondents, both within the business and from external sources such as loans and grants for either short- or long-term investment.

Another prominent barrier highlighted by respondents is the necessity to prioritise other capital expenditure projects over automation equipment (26%), while a substantial number of respondents simply say their businesses do not need to invest in automation. These responses suggest that, notwithstanding current levels of automation, there may still be some way to go to convince a sizeable number of manufacturers of the production improvements automation can bring.

“Lack of funds is one of the most important barriers to further investment in automation.”

Similarly, respondents highlight the need for more support and advice to help them decide whether to invest in automation equipment. While 47% of survey respondents say there is “some or a lot” of such help available, more than a third (36%) say there is “very little or no support” available.

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Which of the following have stopped your business from investing more in automation/robotics equipment in the past 12 months?

<table>
<thead>
<tr>
<th>Reason</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of funds within the business to make long-term investment(s)</td>
<td>14%</td>
</tr>
<tr>
<td>Lack of funding from external sources (e.g. grants, loans etc.) to</td>
<td>9%</td>
</tr>
<tr>
<td>make long-term investment(s)</td>
<td></td>
</tr>
<tr>
<td>Lack of funds within the business to make short-term investment(s)</td>
<td>15%</td>
</tr>
<tr>
<td>Lack of funding from external sources (e.g. grants, loans etc.) to</td>
<td>10%</td>
</tr>
<tr>
<td>make short-term investment(s)</td>
<td></td>
</tr>
<tr>
<td>Prioritising other capital expenditure projects over automation/robotic equipment</td>
<td>26%</td>
</tr>
<tr>
<td>Lack of skills/knowledge within the company to implement automation/robotic equipment</td>
<td>10%</td>
</tr>
<tr>
<td>Concerns over returns on investment from automation/robotic equipment</td>
<td>16%</td>
</tr>
<tr>
<td>The business hasn’t taken the time to seriously consider automation/robotic equipment</td>
<td>15%</td>
</tr>
<tr>
<td>Automation/robotic equipment is too inflexible for the business’s product(s)</td>
<td>18%</td>
</tr>
<tr>
<td>Concerns over impact on workforce (e.g. fear of losing their jobs causing low morale)</td>
<td>11%</td>
</tr>
<tr>
<td>Time/investment needed to identify appropriate robotic equipment/automation solution(s)</td>
<td>14%</td>
</tr>
<tr>
<td>The business didn’t need to invest in/invest more in automation/robotic equipment</td>
<td>28%</td>
</tr>
</tbody>
</table>

What is the availability of support and advice to help your business decide whether to invest in automation/robotic equipment?

- Don’t know: 17%
- Very little or no support: 36%
- Some or a lot of support: 47%
Appetite for future investment

More than two-thirds of British manufacturers (68%) see the potential to increase the use of automation equipment within their businesses according to our survey, demonstrating increasing enthusiasm to embrace new production methods.

Further underlining this appetite to invest, 42% of respondents say their businesses will spend more on automation equipment in two years’ time, compared to the current financial year. This compares to 48% of respondents in Germany.

“The fact that Britain is coming to automation relatively later than some of its international competitors may perhaps give it an advantage. Automation costs are now lower and the pace of technological change means some early adopters may now need to reinvest in newer equipment.

According to our findings, it appears that willingness to increase spending on automation is not something new, but part of a continuing trend over recent years. Our survey reveals that 56% of British manufacturers invested more in automation in the current financial year than they did five years ago, compared to 52% of our German respondents.

More than two-thirds of survey respondents see potential to increase investment, but companies want more help in adopting automation technologies.
Financial and other support

Our research shows that greater financial support is seen by respondents as a key factor that will help their business to invest more in automation in the future (40%). However, survey respondents also make it clear they would benefit from greater support in adopting and implementing automation equipment technologies from the government and equipment suppliers (18%).

Besides finance through government grants and bank loans, many respondents say they would be encouraged by lower equipment costs (25%) and greater flexibility and adaptability of their equipment to perform multiple tasks in production processes (28%).

Our findings suggest a sizeable information gap around automation, with a number of respondents (17%) saying that more education on the benefits to be gained and national campaigns to increase awareness would encourage their business to invest.

Which type of support for automation/robotic equipment would you like to see for the manufacturing industry?

International competition

Comparison with our survey responses from German manufacturers shows that British manufacturers believe they are not too far behind in their ambitions to invest in future automation. A similar proportion (71%) of German respondents see potential to increase the use of automation equipment within their business.

There is, however, a difference when it comes to the financial support that the respective countries’ manufacturers are looking for, with more British businesses calling for better access to funding through grants (37% versus 15% of German respondents).

There are, of course, equally attractive opportunities available through automation to the UK’s international competitors, which underlines the need for UK companies to continue to match them.

“Survey respondents call for more education on the benefits to be gained from automation and national campaigns to increase awareness.”

Which do you think would help your business to start investing in/investing more in automation/robotic equipment in the future?

<table>
<thead>
<tr>
<th>GB</th>
<th>DE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased availability of finance from banks for such investment</td>
<td>26%</td>
</tr>
<tr>
<td>Increased awareness via national campaigns</td>
<td>21%</td>
</tr>
<tr>
<td>Increased engagement with the High Value Manufacturing Catapult</td>
<td>22%</td>
</tr>
<tr>
<td>Grants and other financial support from the government</td>
<td>37%</td>
</tr>
<tr>
<td>Increased support and advice from suppliers of automation/robotic equipment</td>
<td>36%</td>
</tr>
<tr>
<td>Support in adopting and implementing automation/robotic equipment technologies (e.g. from manufacturers of the equipment, government etc.)</td>
<td>18%</td>
</tr>
<tr>
<td>Nothing would help</td>
<td>21%</td>
</tr>
<tr>
<td>More education/information on the benefits of automation/robotic equipment</td>
<td>17%</td>
</tr>
</tbody>
</table>
Types of automation

While automation of parts manufacturing is the area in which respondents (24%) see an opportunity for automation, many identify less skilled areas such as assembly (15%), packaging (12%), machine loading (9%) and palletisation (6%).

Our German respondents see the greatest opportunities for automation in manufacturing parts (27%), machine loading (21%) and assembly (16%).

“Companies may have the opportunity to invest in other areas of production, where there is arguably greater potential to increase productivity.”

This reflects what we often see ‘on the ground’ around the UK, where manufacturers often embrace automation first in relatively low-skilled areas, typically at the start and end of the production process, often aiming for ‘quick wins’ by tackling relatively labour intensive areas of the production process.

Our research suggests that British companies may have the opportunity to invest in other areas of production, where there is arguably greater potential to increase productivity.
Weighing up the benefits

The majority of respondents have seen a positive impact from their investment in automation, but even a moderate further uplift can have a huge impact.

The majority of our survey respondents – in both Britain and Germany – say their most recent investment in automation has delivered improved productivity (65%) or greater consistency and quality in their manufactured products (60%).

In fact, 22% of British manufacturers believe their productivity has increased by 20% or above, compared to 15% in Germany.

60% of respondents in Britain and 65% in Germany say automation has increased the consistency and quality of manufactured products, while 35% of British businesses say a cut in waste created by production has also been a benefit.

Measuring the impact

Our economic modelling of the potential future impact of greater investment by UK manufacturing in automation has examined future ‘what if’ scenarios, based on accelerated and more widespread adoption of industrial robotics technology across the sector.

“What 60% of survey respondents in Britain say automation has increased the consistency and quality of manufactured products.”

Overall, our research suggests that, on balance, the most attainable and impactful scenario is a moderate uplift in investment in automation in the UK over the next 10 years compared to anticipated business-as-usual investment. This assumes a continuation of recent trends towards a catch-up in levels of investment compared to international competitors, especially in sectors that have already seen higher levels of investment of this type, and concentrated mainly on large and larger medium-sized companies.

Our modelling shows that an increase of £1.24bn in automation investment would raise levels of production as measured by Gross Value Added (the value contributed to the overall economy) by £60.5bn in the next 10 years to 2025. This analysis assumes take-up primarily among Tier 1 and Tier 2 manufacturers – those companies closest in the supply chain to the major manufacturers of finished products.

This moderate investment uplift scenario would increase the size of the UK manufacturing sector to £191bn by 2025 – a 19.6% increase on today. Besides direct effects, accelerated investment in robots would also create indirect (supply chain) and induced (wider multiplier) effects, with the output implications as measured by GVA expected to amount to £2.5bn p.a. by 2020 and £3.9bn p.a. by 2025.

What are the impacts from your recent investment in automation/robotics equipment?

- 65% Increased productivity of the business
- 60% Increased consistency and quality of the manufactured product(s)
- 43% Increased cycle times of manufactured products
- 31% Increased number of health and safety issues
- 28% Increased waste created by the business
Put simply, increased automation could allow UK manufacturers, and their supply chains, to more effectively compete domestically with importers of manufactured goods from both lower-cost and higher-productivity international markets, as well as helping them to succeed in growing export destinations.

In contrast, our research shows that continued investment at the anticipated business-as-usual level is likely to result in a greater reduction in employment in the UK manufacturing sector over the next five to 10 years, despite higher levels of manufacturing output.

**Striking the right balance**

Our analysis of an alternative economic model of a more widespread increase in investment indicates that the biggest impact is for Tier 1 and Tier 2 suppliers, with less incremental benefit the deeper and broader the investment is extended.

This model looked at the anticipated impact of faster and more widespread investment – amounting to over £2.55bn by 2025 – not just among companies that have invested already in robots, but extending to companies in the same subsectors (including SMEs) that have so far held back, as well as to subsectors that have so far made comparatively little investment in industrial robots.

This modelling shows that this accelerated level of investment in robots would raise manufacturing GVA by 9.3% over five years, and 21.0% over 10 years, compared to the situation expected under business-as-usual. Compared to the moderate uplift scenario this would add additional value of only a relatively modest £0.9bn p.a. by 2020 and £2.2bn p.a. by 2025.
Safeguarding jobs and bridging the skills gap

Increased investment in automation could safeguard up to 73,500 UK manufacturing jobs over the next 10 years as well as helping to address the skills gap in the sector.

Our economic modelling of a moderate uplift in investment in automation in the UK over the next five to 10 years shows that, while there would still be an overall reduction in manufacturing employment, the level of job losses would be lower than if investment continues at business-as-usual rates.

In addition to safeguarding more manufacturing jobs, increased investment in automation would have a positive impact on levels of employment in other parts of the supply chain, including satisfying increased demand for raw materials, intermediate products and logistics.

“Overall gains for the UK economy would be expected to amount to 33,000 manufacturing jobs by 2020.”

For example, additional investment in automation and robotics in part of the production lines of Original Equipment Manufacturers (organisations that make finished goods from component parts bought from other organisations) might be expected to boost employment in other parts of that business that are stimulated by the increase in activity. Activity and demand in other UK manufacturing businesses that supply components and intermediate products to the OEM might also be expected to increase.

Overall gains for the UK economy of our moderate investment uplift scenario compared to business-as-usual would be expected to amount to 33,000 manufacturing jobs by 2020 and 73,500 jobs by 2025. Jobs created in other parts of the economy as a result could amount to 14,600 and 32,300 by 2020 and 2025 respectively.

In other words, while some jobs would be replaced by robots, the boost to production would be sufficient to increase demand for skills in other activities in UK manufacturing and/or among supply chain businesses in the sector.
Bridging the skills gap

The UK skills gap hampers the ability of the UK manufacturing sector to compete internationally, but investment in automation can help to address this issue.

The majority of our British respondents (56%) agree that a general skills shortage in the industry has a negative impact on its competitiveness and the same percentage say it has impacted their ability to grow. A shortage of specific automation skills is also damaging to competitiveness, say 38% of respondents, and their ability to grow, according to 39%.

These findings appear to give credence to the widely held view that the UK is not yet producing the skilled workforce that manufacturers need to compete in a competitive global marketplace in sufficient quantities.

However, our survey shows investment in automation could help to tackle the shortage of skills in the manufacturing industry, with 57% saying they believe it can provide the opportunity for the workforce to learn additional skills. The automation of production processes can also mean more time for employees to complete other tasks and the findings of our research back this up, with 54% of those from businesses that have invested agreeing that this is the case.

Do you agree below skill shortage has a negative impact on your business’s competitiveness/ability to grow?

<table>
<thead>
<tr>
<th>Skill</th>
<th>Agree</th>
<th>Disagree</th>
<th>Neither agree nor disagree</th>
<th>Don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>General skill competitiveness</td>
<td>56%</td>
<td>17%</td>
<td>23%</td>
<td>4%</td>
</tr>
<tr>
<td>General skill ability to grow</td>
<td>56%</td>
<td>18%</td>
<td>22%</td>
<td>4%</td>
</tr>
<tr>
<td>Automation/robotics skills competitiveness</td>
<td>38%</td>
<td>18%</td>
<td>28%</td>
<td>16%</td>
</tr>
<tr>
<td>Automation/robotics skills ability to grow</td>
<td>39%</td>
<td>17%</td>
<td>28%</td>
<td>16%</td>
</tr>
</tbody>
</table>
What extra time did investment in automation give staff to complete other tasks?

- **INCREASED**
  - Over 20%: 8%
  - About 20%: 9%
  - About 10%: 19%
  - Less than 10%: 18%
  - Made no difference: 19%

- **DECREASED**
  - Less than 10%: 4%
  - About 10%: 2%
  - About 20%: 2%
  - Over 20%: 2%
  - Don’t know: 19%

To what extent, if at all, do you believe your business investing in automation/robotic equipment would contribute to upskilling your business’s workforce?

- **Contribute a lot**: 19%
- **Contribute somewhat**: 38%
- **Wouldn’t contribute very much**: 21%
- **Wouldn’t contribute at all**: 13%
- **Don’t know**: 9%
Case study: Eakin Group

Eakin Group – an award-winning manufacturer of high-quality medical products – will have invested approximately £7-8m in automation at one of its subsidiary companies by the end of this year, helping to generate annual turnover of around £28m.

Increasing volume to meet demand

The £7-8m invested at Pelican Healthcare since Eakin Group acquired it in 2007 has vastly increased production levels. Volumes of Pelican Healthcare’s major product – ostomy pouches – has risen from 2.5 million a year to close to eight million this year.

Eakin Group’s other main product – the Cohesive® Seal, which is used in stoma care – is now sold in 40 countries, but sales really took off when they extended distribution into the US for the first time. The huge demand was only met because, in 2004, Eakin Group invested in its first automated process machinery. Says UK CEO, Paul Eakin: “We were already working nightshifts and I’m not at all sure the company would have survived without developing that automation equipment.”

Flexibility of production

Eakin Group’s automated process line for the Cohesive® Seal, which improved both product quality and cycle times for a decade, was last year replaced by newer equipment that now also integrates packaging, making production 100% automated. Pelican Healthcare’s ostomy pouch production line is even set up so the company can select different functions along the line for different products.

“This means we can make about 85% of all our products using the machinery,” explains Paul. They now have a second automated process line with a third on order.

Fending off overseas competition

Automation has also enabled Eakin Group to export to multiple overseas markets, as well as being key to resisting competition from rival foreign operators by reducing production costs. “One of our other Pelican products faced a threat from cheap products from Turkey,” says Paul. “We put in a robotic assembly system and that has enabled us to keep manufacturing in the UK.”

Working with suppliers

Paul stresses the importance of flexibility on the part of the company’s equipment suppliers to overcome the numerous technical challenges involved in getting automation up and running. In fact, this was a key factor in Pelican Healthcare’s choice of supplier, based in Italy: “They accepted the technical challenge and worked at it, at their cost, until they got it right.” Eakin Group seeks to develop symbiotic relationships with its key equipment providers and suppliers, which enables continuous business development for both partners.

“Automation not only allowed the company to increase volumes but also greatly lowered the cost price of the product.”
Cutting production costs

Manufacturing many of Eakin Group’s products had been a very labour-intensive activity and this became a limiting factor for the business’s growth. Automation not only allowed the company to increase volumes but also greatly lowered the cost price of the product. At Pelican Healthcare, highly manual production of ostomy pouches has been replaced by a linear process line of machinery that completes all the stages of assembly automatically.

New skills for employees

The development of automation throughout the manufacturing facility at Eakin Group has enabled a move away from unskilled manual activity to highly skilled machine setting and operating functions. Automating production of their Cohesive® Seal product has allowed employees to be cross-trained to perform vital quality control roles or to be reassigned to other work including operating the new machinery.

What the future holds

A typical four-year timeframe required to realise a return on investment in automation has diminished as the company has continued to apply new equipment and concludes that automation is an absolute necessity to allow the business to continue to compete and grow. “We are absolutely wedded to automation and are constantly seeking ways to increase it.”

Paul Eakin
UK CEO
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Insight: High Value Manufacturing Catapult

Automation, productivity and jobs

The UK has long lagged behind many industrial nations with its uptake of automation in manufacturing. A simple look at each year’s figures from the International Federation of Robotics shows the UK far behind its major competitors. Yet automation of manufacturing tasks gives the UK huge potential to increase its productivity.

Flexibility, consistency, reliability

We humans are by nature flexible beings. We learn new things every day and adapt to our surroundings and environments as required. We can put together an assembly regardless of minor variations in fit because we are able to make judgements. However, because we can make judgments we are inconsistent and unreliable. We get distracted and fatigued, which as a consequence can mean our productivity drops. Robotics and automation do not suffer from these human constraints. Indeed the level of reliability and consistency provided by robotics and automation for high-speed repeatable tasks far exceeds that of a human and now with the latest developments in sensor technology and adaptive software, flexibility can be brought closer to that of a human being.

Jobs

How does all this affect jobs? While it’s true that in the short term the introduction of automation often reduces the need for direct labour, the overall picture is not as simple. Robots can’t do anything until they are programmed and configured by engineers and technicians.

Robots are only reliable if they are effectively maintained and this drives the need for a richer mix of (higher) skilled jobs in the workplace, giving opportunities for displaced staff to be developed into these new roles.

There is a relatively simple analogy to make here; a Formula One car is often the main focus of a team; but it is the backup team – the engineers, technicians, aero-dynamicists and others – that actually ensure that the car is as fast and reliable as possible. Automation is very similar; without the backup team, a robot is just a ‘dumb tool’.

Studies have shown that successfully implemented automation leads to an increase in orders and turnover for the user, resulting in the creation of more productive and well-paid jobs in other parts of the business. This in turn impacts on the wider economy and drives up a nation’s GDP.

The future

A recent conference at the Royal Society brought together some of the world’s leading researchers on robotics and autonomous systems. It was quite extraordinary to see the developments in software and sensing systems which give machines intelligence and the ability to adapt to what they ‘see’ around them.

This intelligence helps to make robots safe to work in close proximity to humans, removing the need for expensive closed-off automation cells, bringing together the judgement and dexterity of humans with the strength, repeatability and resilience of robots.

At the same time, robots have become cheaper to acquire and easier to use and implement. All of the past learning on robotics is already available in the software, so that decades of experience are ‘factory embedded’ when you buy one. This offers manufacturers in the UK the potential to not only bring increased flexibility, consistency and reliability into their operations but to also create high-skilled jobs.
Key takeaways

• 58% of British manufacturers have invested in automation and/or robotics and 68% see potential for future investment

• 65% of British respondents whose businesses have invested say their productivity has increased as a result of automation and a further 60% report that it has improved the consistency and quality of manufactured products

• Lack of funding and other capital expenditure priorities are key barriers to further automation

• Even a moderate increase in automation investment can have a significant impact on productivity and could raise the overall value added to the UK economy by £60.5bn by 2025

• Additional automation could mitigate further manufacturing job losses and safeguard up to 73,500 UK jobs by 2025, as well as helping to upskill the manufacturing workforce

• Levels of automation are higher among larger companies in the UK and further investment among these companies has the biggest potential impact on value to the UK economy

• More than a third of companies believe there is very little or no support available to them when it comes to automation – government and suppliers have an important role to play in bridging the knowledge gap

• UK companies may have an opportunity to focus more on relatively under-invested areas of production, where there is arguably greater potential to increase productivity.

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About the author

For further information and to find out how our sector specialist teams can support your business, please contact Mike Rigby, National Head of Manufacturing, Transport and Logistics.

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Mike is the National Head of Manufacturing, Transport and Logistics for Barclays. Since joining Barclays in 2008, Mike has always had a direct focus on the manufacturing sector, taking the lead for the wider manufacturing, transport and logistics sectors since 2012. Prior to joining Barclays, Mike was with HSBC for 14 years where he covered a number of roles across credit, retail and corporate banking.

Mike is passionate about the manufacturing, transport and logistics sectors and believes they are essential to the UK maintaining a balanced and resilient economy. His vision is to make Barclays the bank for companies in the manufacturing, transport and logistics sectors.

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