

Transformers in the Manufacturing and Industrials Sector

Traditional industry is currently undergoing a digital transformation, and industrial processes are increasingly merging with modern information technologies. The most recent trends go beyond simply automating production: experts use the term “Industry 4.0” to refer to a fourth industrial revolution.

Deloitte University Press published a report called Talent Edge 2020: Perspectives from the Consumer and Industrial Products Industry which showed that even with high unemployment, executives that were surveyed foresee talent shortages in areas critical to innovation and research in their organisations. Specifically:

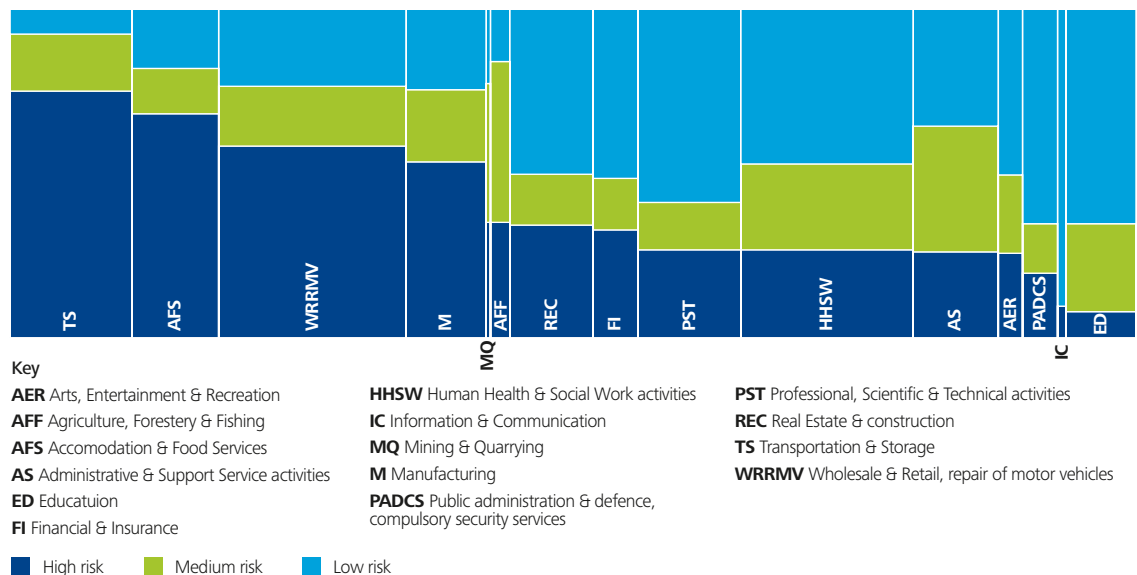
- Aerospace & Defence companies urgently need science, technology, and engineering talent.
- The automotive sector confronts growing demands for greener engine technologies, coupled with an increasing integration of mechanical, electrical, and software engineering. Both require specialised R&D knowledge.

The marimekko chart below shows the estimated impact of automation on current employment levels for each industry classification. Three quarters of jobs in the Transport and Storage industry have a high probability of automation, the highest proportion of any industry in the UK. Conversely, only 8 per cent of jobs in the Education industry are at high probability of automation. Manufacturing sector ranks 4th with 54% of jobs at high risk of automation.

Key highlights

- 54 per cent of manufacturing jobs have a high probability of being automated in the next 10 to 20 years
- Over the last 15 years the number of manufacturing jobs have declined the most of all industries in the UK
- Although there has been net job displacement in manufacturing since 2001, this does not mean that the industry is in decline. In fact automation has improved productivity and reduced costs, improving global competitiveness [EDC to insert ref]
- Artificial Intelligence, Deep learning, robotics, manual material handling technologies are the most prevalent in manufacturing automation

Estimated probability of automation of jobs by industry classification, 2014-2034



Source: Frey and Osborne, ONS, Deloitte analysis 2015

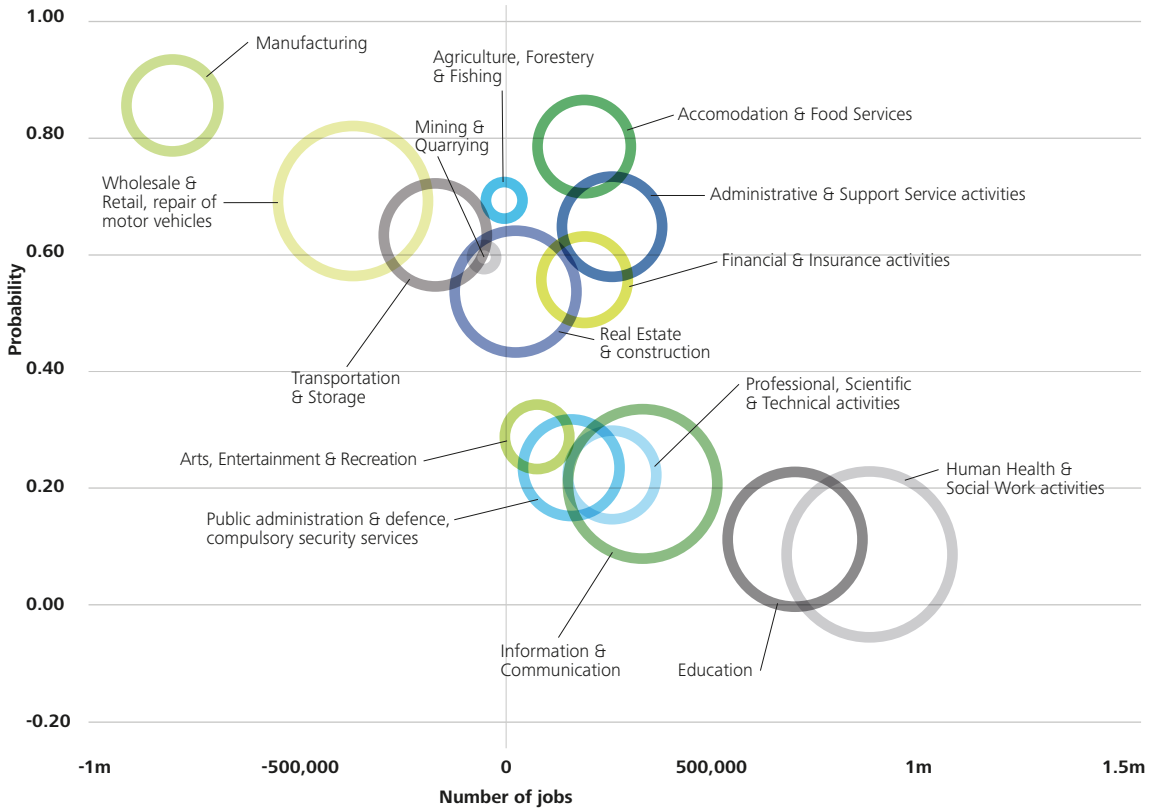
The bubble chart below provides context for the anticipated (y axis is the probability of automation) and proven impacts of automation on industry employment (x axis is the change in employment between 2001 and 2015). The size of each bubble reflects the current number of jobs in every industry. This visualises the disruption in each industry, by comparing the relative growth (or shrinkage) of each industry's share of UK employment. For example, the chart shows that the Manufacturing industry's share of UK employment has fallen the most, and current employment in manufacturing jobs, form 5 per cent of the UK labour force.

Many of the new production methods require fewer people working on a factory floor as smarter robots and technologies take the lead.

However all these machines need someone to service them, instruct and programme them which often calls for a high range of skills. Certain tasks such as assembling components, remain too detailed for a robot to do completely so assemblers (low wage, low skilled job) are still required.

This is supported by a Deloitte University Press report called The future of manufacturing – Making things in a changing world it explores the shift in workforce composition, freeing unskilled labour from repetitive tasks once too expensive to automate while further enabling the use and expansion of “cobots” – robots that work directly and collaboratively with human beings.

Impact of Technology on jobs for employers and employees in manufacturing over the last 15 years



The graph opposite shows the change in the contribution of wages, by industry, to the UK economy over the last 15 years.

In short, Manufacturing will still need people perhaps not in their current capacity, as automated machines will need people to design, program and service them.

As manufacturing continues to transform and implement technology driven methods, and the ageing workforce with its current skill set look to retire, organisations will have to look the next generation of talent. The new workforce of engineers and technicians will have grown up with the Internet, smartphones and video games and will aspire to careers which continue to show them new technologies equally the organisations that employ them will have high expectations of their abilities.

Biggest growth and shrinking occupations in Manufacturing, 2001-2015

Winners

- Purchasing managers and directors
- Engineering technicians
- Chemical scientists

Percentage of jobs created in industry

56%

26%

7%

Losers

- Sewing machinists
- Metal machining setters and setter-operators
- Assemblers (electrical and electronic products)

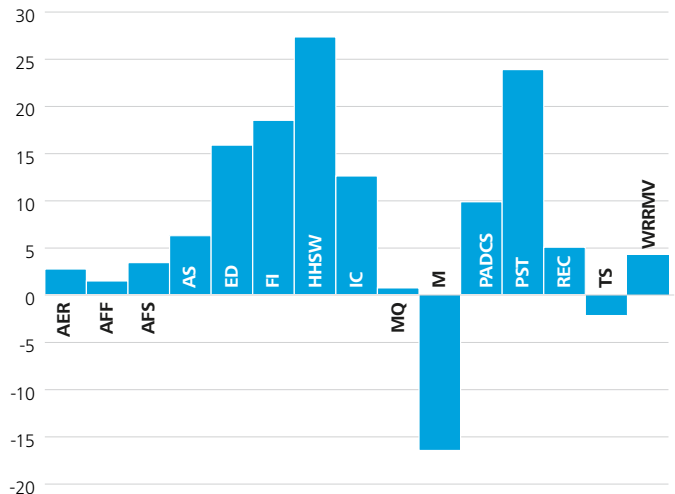
Percentage of jobs lost in industry

-6%

-6%

-8%

Change in wage contribution to economy by industry £ billion, 2001-2015



Key

- AER** Arts, Entertainment & Recreation
- AFF** Agriculture, Forestry & Fishing
- AFS** Accommodation & Food Services
- AS** Administrative & Support Service activities
- ED** Education
- FI** Financial & Insurance
- HHSW** Human Health & Social Work activities
- IC** Information & Communication
- MQ** Mining & Quarrying
- M** Manufacturing
- PADCS** Public administration & defence, compulsory security services
- PST** Professional, Scientific & Technical activities
- REC** Real Estate & construction
- TS** Transportation & Storage
- WRRMV** Wholesale & Retail, repair of motor vehicles

Source: Frey and Osborne, ONS, Deloitte analysis 2015

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