

Human Capital: disruption, opportunity and resilience in London's workforce

A report by Centre for London, supported by and produced in association with EY.

London's economy has been on a roll in recent decades, establishing the city as a leading global centre for finance and business services, cultural industries, higher education and tech. But times are changing: the growth of automation, Brexit and wage pressures are three factors with potential to shake up London's labour market.

This report undertakes fresh analysis of data on London's workforce, skills and specialisms in order to consider which jobs and businesses will be most affected. It also reviews the factors that will help the capital adapt to change, and considers the implications for businesses and policymakers.

Automation is expected to affect more and more jobs in coming decades...

- Machine learning and mobile robotics are enabling the automation of ever more complex tasks, though the human skills of creativity, dexterity and social intelligence remain more challenging.
- The **cost of robots is falling**, by around 10 per cent each year.
- The impacts of technological change on work are uncertain, but estimates suggest that between **10 and 47 per cent of current jobs in high-income countries** could be automated over the next 20 years.

...and in London, automation combines with other disruptive factors.

- **Reduced access to European labour** following Brexit could pose a particular challenge in a city where 15 per cent of workers come from other European countries.
- **Pressure on wages** resulting from national policy and rising costs within London may be amplified by labour shortages, creating more pressure for automation.

London's workers and employers are expected to face a perfect storm of disruption...

- Around **one-third of London's jobs could be automated**.
- The **impact is likely to be greatest for low-and medium-skilled workers** in secretarial, administrative, sales and routine trade jobs.
- Their occupational makeup means that **wholesale and retail, transportation and storage, and accommodation and food** – together accounting for around one million jobs in London – are the sectors **most likely to be affected**.
- Automation in some of these sectors (such as accommodation, food and retail) may be accelerated by wage pressures and labour shortages.

...but London is also well placed to weather the storm.

- Jobs in retail and food service in the capital are often more specialised than in the UK as a whole, with **more focus on personal service and less capacity for automation**.

- New jobs are likely to be created in finance, IT, education, manufacturing, and health – some of which are London specialisms.
- **London’s workers are better qualified:** 53 per cent have degrees compared with 31 per cent in the rest of the UK, suggesting a greater capacity to adapt to change (though international comparisons are less favourable).
- London’s “global city” clusters offer **high productivity and a concentration of higher-skilled functions**, suggesting sectoral strength and resilience.

Businesses are already working to capture opportunities and ready themselves for change...

- Diversified, artisanal and bespoke products are offered to increasingly discerning consumers.
- Business services are “moving up the value chain” – offering **specialised consultancy services** rather than the routine services that are already being automated.
- As routine cognitive work is automated, employers are seeking staff with **adaptable, creative and people-focused skills**.

...but policymakers should also think radically about how to respond.

- Education and skills policy should increasingly focus on **developing cognitive skills and the capacity to learn, not just delivering vocational and academic qualifications**.
- **Immigration policy must reflect the need to secure and retain the skills** necessary to grasp the new opportunities emerging from technological, social and demographic change.
- Regulatory systems need to be **progressive – capable of making London a centre for the development and adoption of new technology**, while safeguarding worker and consumer interests.

The table opposite summarises the potential for disruption and mitigation in different industrial sectors in London. Orange indicates high potential for disruption, yellow medium and green low. For mitigation, orange indicates low potential for mitigation, yellow medium and green low. In summary, it shows:

- The **potential for automation** over the next 10-20 years.
- The **level of reliance on EU labour**, which may be disrupted by the impact of Brexit.
- The **exposure of low-waged sectors** to changes in regulation or market conditions.
- The **potential for growth** in demand unlocked by automation and other factors.
- The **existing skills levels**, and the flexibility they represent.
- The **strength of clusters** in London, and the resilience to economic change that these embody.

Potential disruptions and mitigatory factors in London, by sector

Disruption ● Low ● Medium ● High

Industry sector	Disruptions		
	Automation	Migration	Wage
Manufacturing/production	Medium	Medium	Medium
Construction	Medium	High	Medium
Wholesale and retail	Medium	Medium	High
Transportation and storage	Medium	Medium	Low
Accommodation and food	Medium	High	High
Information and communication	Low	Medium	Low
Financial and insurance	Medium	Medium	Low
Real estate	Medium	Low	Medium
Professional, scientific and technical	Low	Medium	Low
Administrative and support	Medium	High	High
Public administration, education and health	Low	Medium	Low
Arts, entertainment and recreation	Low	Low	Medium

Mitigation ● Low ● Medium ● High

Industry sector	Mitigation		
	Demand	Skills	Cluster
Manufacturing/production	Low	High	High
Construction	Medium	High	High
Wholesale and retail	Medium	High	Medium
Transportation and storage	Medium	High	High
Accommodation and food	Medium	High	Medium
Information and communication	Low	Low	Low
Financial and insurance	Low	Low	Low
Real estate	Medium	Medium	Medium
Professional, scientific and technical	Medium	Low	Low
Administrative and support	Medium	High	Low
Public administration, education and health	Low	Medium	Medium
Arts, entertainment and recreation	Medium	Medium	Low

Source: Centre for London calculations based on OECD, International Monetary Fund, and UCL Institute of Education analyses.

There are a number of sectors which seem to face particularly intense disruption: **construction, retail, accommodation and food and administrative and support services** are all relatively poorly paid and highly dependent on a migrant workforce – as well as offering high potential for automation. As Brexit approaches and pressure on pay mounts, it is relatively likely that automation will become more widespread in these areas – at least for those tasks where no “engineering bottlenecks” (the need for advanced dexterity, creative intelligence and social intelligence) are present. On occasion, this may require redefinition of tasks – for example, separating the manufacture of standardised housing units or components from their assembly on complex and cluttered building sites. In construction, the issue may become acute more quickly, as the workforce is relatively aged: across the UK, around 20 per cent of construction workers are aged over 55.¹

That said, each of these sectors exhibits considerable variety within London, which cannot always be picked up through use of standardised statistics. While basic retail and food service functions are already being automated – as automatic tills and Internet shopping grow – London has a considerable concentration of specialist, often high-end traders and restaurants, where serving staff and shop assistants will not be as easily replaced as in fast-food chains, supermarkets or high street outlets. In these sectors, relatively high qualification levels may be attributable not only to graduates “trading down”, but also the nature of work within the sector.

In other sectors, such as **arts, entertainment and recreation, and financial, professional and technical services**, the immediate potential for automation seems lower, while the potential for job growth seems higher and clustering effects seem more pronounced. However, there may be significant change within these sectors as more routine tasks are automated, enabling higher productivity and a shift of workforce to higher value-adding activities.

A special note of caution should be sounded with the **financial and insurance sector**. While the overall automation potential for people working in this sector is medium, some underlying occupations (especially associate professional roles) might be much more exposed, as future demand shifts to tech occupations rather than traditional finance professional roles. In 2000, more than 600 cash equity traders worked at Goldman Sachs’s New York headquarters. These have since been replaced by automated programs supported by 200 computer engineers – and two equity traders. This may turn out to affect other activities in investment banking too: Goldman has identified 146 steps taken in any initial public offering of shares, and “many are begging to be automated.”²

Many **transport** occupations are associated with a particularly high risk of automation. At the same time, many jobs in this sector are relatively well paid and open to those who did not pursue further or higher education having left school. A sharp decrease in demand for these workers – if the speed of automation is as great as many expect it to be – may create a challenge on a similar scale to the decline of manufacturing employment in previous decades.

It is also worth bearing in mind that these disruption and mitigation factors have interdependencies, not only within but also between sectors. The interdependencies become clear when looking at the relationship between immigration, wages and automation. For example, higher barriers to immigration will reduce labour supply (particularly in low-wage occupations), potentially leading to higher wages (despite mixed results in research on this topic)³. This might in turn encourage investment in capital to automate these jobs, but displaced workers moving to other sectors might then drive down wages there.

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1. Chartered Institute of Building (2015). Exploring the impact of the ageing population on the workforce and built environment.
 2. Byrnes, N. (2017). As Goldman Embraces Automation, Even the Masters of the Universe Are Threatened. MIT Technology Review, February 2017.
 3. Rhu, M. and Vargas-Silva, C. (2016). The Labour Market Effects of Immigration. Migrant Observatory, University of Oxford. Retrieved from: <http://www.migrationobservatory.ox.ac.uk/resources/briefings/the-labour-market-effects-of-immigration/>

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