

COMMISSION REPORT

community
For a better working world

FABIAN SOCIETY

An illustration depicting a collaborative work environment. A worker in blue overalls and a yellow hard hat is climbing a large blue document. Below, a man in a white shirt and yellow pants is reaching up to a document. To the right, a woman in a blue top and blue pants, also wearing a yellow hard hat, is pointing at a document. In the foreground, a woman in a yellow top and yellow pants is holding a glowing lightbulb. To the left, a yellow sign with code symbols (</>) and a lightbulb icon stands on a stand. A yellow set square is on the floor. The background is a stylized cityscape with grey buildings.

SHARING THE FUTURE

**WORKERS AND TECHNOLOGY
IN THE 2020s**

*The final report of the Commission
on Workers and Technology*



Community is a modern trade union with over a hundred years' experience standing up for working people. With roots in traditional industries, Community now represents workers across the UK in various sectors.



The Changing Work Centre was established by the Fabian Society and the trade union Community in February 2016 to explore progressive ideas for the modern world of work. Through in-house and commissioned research and events, the centre is looking at the changing world of work, attitudes towards it and how the left should respond. The centre is chaired by Yvette Cooper MP and supported by an advisory panel of experts and politicians.



The Fabian Society is an independent left-leaning think tank and a democratic membership society with 8,000 members.

A Community and Fabian Society report
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This report represents not the collective views of Community and the Fabian Society, but only the views of the individual commissioners and authors. The responsibility of the publishers is limited to approving its publications as worthy of consideration within the labour movement.

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The lead authors of this report were Josh Abey and Andrew Harrop. They were extensively supported by co-authors Natasha Collett, Lauren Crowley, Alastair Holder Ross, Anna Mowbray and Luke Raikes.

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The commission was hosted by the Changing Work Centre, a multi-year partnership between Community and the Fabian Society. The centre was established in February 2016, and since then has hosted debate and undertaken new research to provide progressive ideas for the modern world of work. The original idea for the commission was developed at the centre by Lauren Crowley and Olivia Bailey.

In addition to the numerous individuals and organisations who gave evidence to the commission in writing and in person, we would like to thank those who hosted and facilitated our workplace visits: Asda, Zurich Insurance, Siemens, the Advanced

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This report is the full report of the Commission on Workers and Technology. A summary report is available at www.fabians.org.uk. ■

CONTENTS

4	Introduction
6	List of recommendations
7	Actions trade unions and employers can take now
8	Chapter one: The Covid-19 crisis
18	Chapter two: A fair share in the rewards
31	Chapter three: The support to adapt
43	Chapter four: Better jobs
52	Chapter five: Making workers' voices heard
61	The commissioners
62	Our surveys of working adults
66	Endnotes

Introduction

THE COMMISSION ON workers and technology was established in August 2018. It is chaired by Yvette Cooper MP and hosted by the Changing Work Centre, a joint research initiative from Community union and the Fabian Society. Our commissioners are drawn from experts, businesses and trade unions. In what now seems like a different age, in summer 2018 we set out with a spirit of optimism and pragmatism. Our goal was to position workers at the heart of thinking about technological change and to chart the path to a better future, where technology enables good work for all.

Before the Covid-19 crisis, most experts thought that the impact of technology change would be gradual. Researchers expected the tasks people do to change, but only slowly over time; and they did not expect many jobs would be replaced completely soon. Many previous reports on technology and work therefore focused on the long term, looking ahead over several decades to the speculative impact of technologies that are many years away.

But as this year's events have proved, shifting technology is also affecting workers here and now; and our focus as a commission has been on changes that can be expected in the next few years, reaching out to 2030 at the latest. We have examined how technology is already transforming 'ordinary', everyday jobs today and how the

Covid-19 recession will accelerate trends we expected to observe over the course of the 2020s.

In a report about the potential for robots to steal workers' jobs PwC, described three overlapping waves of automation.¹ First there is the 'algorithmic wave' (already well underway) involving the automation of simple computational tasks and most affecting data-driven occupations like finance. A second 'augmentation wave' has started and is creating more dynamic interactions between people and technology, such as the replacement of routine tasks with robotics in warehouses. A third 'autonomous wave', involving the complete automation of physical labour and manual dexterity, will require reactive problem solving in real-world situations and is set to transform fields like transport and construction. It is developing now but is unlikely to have widespread applications during this decade.

The Covid-19 pandemic has however upended expectations of the next 10 years and of the pace and scale of likely changes to the world of work. The reality is that automation will happen gradually in some sectors and suddenly in others. The 2020 recession, like previous economic downturns, will expedite existing trends and hasten developments that were thought to be a number of years away. That is why active leadership is required now from gov-

ernments, employers and trade unions – to ensure that in the decades to come we are not playing catch-up, desperately trying to address inequalities and injustices created by accelerated technology take-up in this moment of crisis.

In the decade ahead, automation is expected to have the largest effect on jobs and tasks characterised by routine. While automation will hit some jobs requiring high qualifications (such as accounting and finance) or high practical skills (such as advanced manufacturing), its impact will be felt disproportionately in low-paying sectors such as retail and hospitality. Most jobs with a lot of routine tasks are done by workers with few formal skills and qualifications; workers who tend to come from more disadvantaged backgrounds and live in more disadvantaged places. These are the same workers who have already been hit by the Covid-19 recession and our report looks at the impact of the overlapping risks of the coronavirus crisis and automation over the coming years. Without action to rectify these imbalances, technology change poses real risks to equality with respect to geography, social class, gender and other forms of disadvantage.²

That is why, in everything we have done during this commission, we have started with a workers' eye-view. Over the course of the project we have heard from hundreds

of people in 'ordinary' jobs in every sector of the economy. In two years, we have:

- Spoken to workers and employers across England at:
 - An Asda distribution centre in Normanton, West Yorkshire
 - A Zurich Insurance office in Fareham, Hampshire
 - A Siemens factory in Congleton, Cheshire
 - The Advanced Manufacturing Research Centre in Sheffield, South Yorkshire
 - A Johnson Matthey site in Royston, Hertfordshire
- Convened focus groups of workers across different industries and occupations, in Doncaster, Hampshire, Leicester and Manchester
- Hosted evidence hearings and roundtables, where leading experts and businesspeople have presented their analysis and proposals
- Conducted national surveys of working adults in 2018 and 2019
- Analysed the wide-ranging literature and data on technology change
- Discussed our recommendations in depth with experts in the field

During the project we have looked at technology change broadly, taking a lead from the way employees described it to us. While developments in AI and machine learning grab the most attention in the media, it is often more established, everyday technologies such as e-commerce or digital surveillance that are having the biggest impact on people's working lives today and therefore the wider economy.

Our remit is therefore wide. However, we have imposed a few restrictions on ourselves. First our focus has been on people who are already in the workforce not on support for the next generation of workers. For this reason, we do not consider schools, 16–19 education or support for

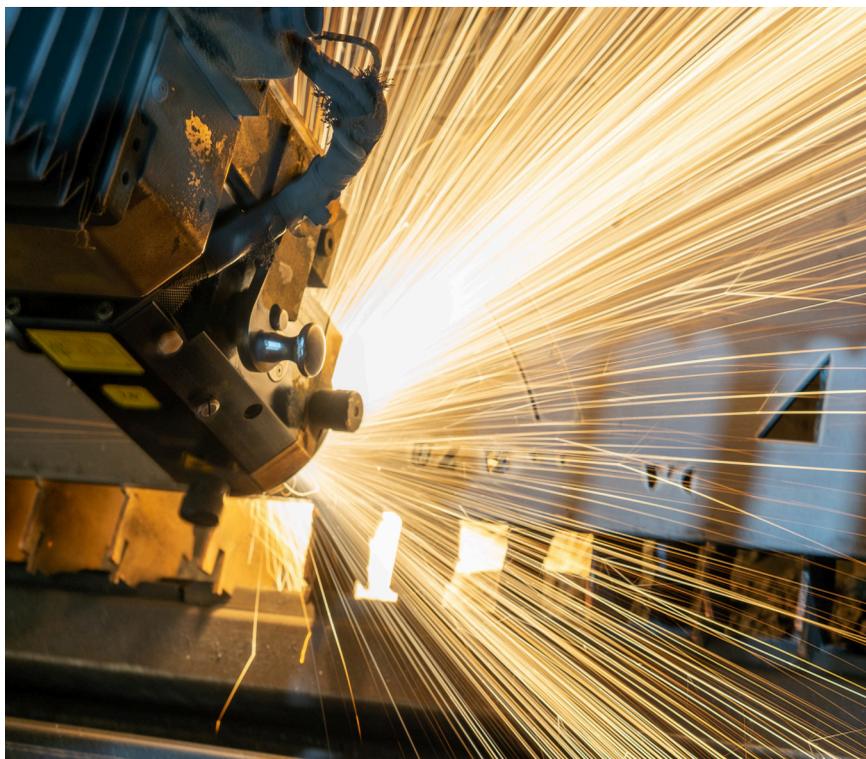
young people entering the world of work. In the context of a new recession we recognise this is a constraint, as school leavers are likely to be amongst the worst affected in the next few years.

This report is focused on jobs and the labour market in the short and medium term and we have taken a workers' eye view

Second, while we have looked at industrial developments across the UK, we examined the policy landscape in England only. For some of the issues we considered, Westminster legislation and public policy applies across Great Britain or the United Kingdom, and where it does our recommendations apply to the other nations too. However, when this is not the case our proposals are for England only, although we hope the principles that inform them will resonate in Scotland, Wales and Northern Ireland too.

This report is focused on jobs and the labour market in the short and medium term, and we have deliberately taken a workers' eye view. We therefore did not reflect on the future of work over a much longer period or consider the revolution in the welfare state, benefits and social policy that would be required if demand for labour by humans were to fall very significantly in several decades' time. And because our focus has been the everyday experiences of typical workers, we have not explored other current and important technology-related issues such as fears over rising concentrations of power in the global economy and the position of the 'big tech' companies.

Starting from the perspective of people in ordinary jobs, our report sets out 31 recommendations to help us realise a future where technology improves work, empowers workers and narrows inequalities rather than widens them. It is a call to public authorities, employers and trade unions to work together to respond to the urgent challenges posed both by the Covid-19 recession and accelerating technology change: to shape a better, technology-enabled future for everyone in work. ■



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List of recommendations

The Covid-19 crisis

1. Provide immediate training for furloughed workers and more support for freelancers (England/UK).
2. Introduce new industry plans for sectors where jobs are most at risk (UK).
3. Create and support good jobs to absorb unemployment during the recession (UK).
4. Introduce a ‘work and training’ guarantee for the unemployed during the recession (England/UK).
5. Fund a major increase in adult training and education during the next 12 months (England).

A fair share in the rewards

6. Adopt a new industrial strategy with renewed focus on high-employment industries and increased infrastructure investment (UK).
7. Act to prevent higher earnings inequality during the recession and promote rising pay and productivity over time (UK).
8. Increase the value, status and pay of care work and other essential low-paid jobs that are unlikely to be automated (England).
9. Combine employer support for innovation, business development and skills to drive up productivity, technology adoption and support for the workforce (UK).
10. Empower local leaders to help more businesses use new technology and create good jobs (England).

11. Transform towns with plans for jobs, training and investment (England).
12. Establish a review of equality law and automation (Great Britain).

The support to adapt

13. Create an integrated adult skills system with a training offer for everyone (England).
14. Support unemployed people to ‘work and train’ on a permanent basis (Great Britain).
15. Support incomes while workers train (UK).
16. Gradually build apprenticeships into the mainstream in-work pathway for intensive training (England).

17. Support local areas and sectors to fund high-priority technical qualifications beyond the new national entitlement to free adult training (England).

18. Create a new national digital service to support all workers to retrain and expand the Union Learning Fund (England).

19. Reform Jobcentre Plus and create ‘work and skills’ hubs in every part of the country (Great Britain).

20. Over time introduce new requirements on employers to support training and skills (England/UK).

Better jobs

21. Establish good work standards and require large employers to take part to access government procurement and grants (England or UK).

22. Introduce a stronger universal right to request flexible work (UK).

23. Create a platform economy council to improve gig work (UK).

24. Clarify who is eligible for employment rights and seek to eliminate financial incentives for employers to use contractors rather than employees (UK).

25. Reform privacy legislation and codes of practice to restrict automated decision-making and workplace monitoring (UK).

Making workers’ voices heard

26. Employers should embrace a new culture of workplace partnership and involve workers and trade unions in technology-related decisions (UK).

27. Trade unions should redouble their efforts to support vulnerable workers and demonstrate the benefits of strong social partnership (UK).

28. Transform national, sectoral and regional economic leadership bodies into social partnership institutions (England/UK).

29. Technology and skills should become part of collective bargaining at firm and sector level (UK).

30. Extend worker consultation across the economy and introduce worker directors for large firms (UK).

31. Remove barriers to trade union recognition and organisation (UK).

Actions trade unions and employers can take now

Trade unions in individual workplaces should:

Redefine their role to focus on dialogue and negotiation with respect to new technologies and skills. Where unions are recognised, they should seek agreements about how employers will consult and negotiate on technology implementation and training (see recommendation 29).

Redouble their existing efforts to recruit, organise and seek recognition in workplaces where membership is low and workers are insecure and vulnerable to technology change. They should make a positive offer to employers on the value of consultation and partnership (see recommendation 27).

Individual employers should:

Support workers through the Covid-19 crisis as best they are able, by providing training to existing workers on furlough, offering work and training to young people through the Kickstart scheme, and increasing the number of apprenticeships available for new recruits (see recommendations 1,4 and 5).

Report their pay ratios, make commitments about earnings inequality within the firm and adopt collective pay bargaining (see recommendation 7).

Introduce regular skills reviews and plans, offer all workers structured on-the-job training and encourage requests for time off to train (see recommendation 20).

Support flexible working across the whole workforce, including at recruitment and for workers who are not employees (see recommendation 22).

Embrace a new culture of workplace partnership and involve workers and trade unions in technology-related decisions (recommendation 26).

Adopt formal worker consultation arrangements, place workers on boards, and include technology and skills in collective bargaining agreements (see recommendations 29 and 30).

Trade unions and employer organisations should together:

Develop joint proposals for how to save jobs across the economy in the wake of Covid-19. This should include ideas for sector-specific crisis plans and job creation schemes in growth industries (see recommendations 2 and 3).

Discuss the benefits that would come from extending collective bargaining to more firms and introducing sectoral bargaining in areas such as social care, and agreeing

national or sectoral frameworks on collective bargaining (see recommendation 7).

Assess together the equality implications of new workplace technologies especially recruitment and monitoring technologies (see recommendation 12).

Develop joint proposals for England's future skills offer to adults and identify priorities for public spending, building on the collaboration established by the former National Retraining Scheme (see recommendation 13).

Negotiate Good Work Standards both nationally and at sector level as a statement of good employment practice for large employers (see recommendation 21).

Create a platform economy council to introduce measures to improve working practices and terms and conditions for gig economy workers (see recommendation 23).

Explore trade union representation (or expanded representation) on a wide range of employer-led bodies including sectoral partnership bodies and local enterprise partnerships (see recommendation 28).

Work together to develop best practice on worker representation on boards, for firms of different sizes and characteristics (see recommendation 30). ■

Chapter one: The Covid-19 crisis

THE ECONOMIC SHOCKWAVES of Covid-19 are being felt in communities across the country and they will continue to be felt in the decade to come. Workers and employers have seen an immediate impact, in terms of job losses, new modes of working and the rapid take-up of technology to deal with the crisis.

Many other reports examine how to address the jobs emergency created by Covid-19. But in this chapter, we look specifically at the interaction between the Covid-19 crisis and the impact of technology on workers. We call for major interventions to safeguard jobs, support unemployed people and create new work. We also believe that this crisis should trigger a transformation in adult learning to equip people for the jobs of the future.

Reasons to be optimistic: In recent months, technology has helped many people cope with the Covid-19 crisis. Digital technologies have enabled major transformations in the way we work, in order for jobs, businesses and services to keep functioning during lockdown and social distancing restrictions. This has helped to protect jobs, as small and large businesses have embraced new technologies and ways of working in order to survive, often by moving online or pivoting to remote working where possible. Many of these changes will be

permanent and will bring long-term benefits for productivity and the quality of work.

The rapid take-up of new technologies during this crisis has also given us insight into the opportunities that technology presents for the future. Many sectors – from retail to education – have continued to operate successfully despite new Covid-related restrictions. Some of these changes will be positive and permanent, triggering new modes of working that will improve jobs in the long term for some workers.

Technology also presents us with the opportunity to build back better after the Covid-19 crisis, by creating good new jobs in growth sectors like low-carbon and digital infrastructure, health, social care and education; and also new job and training guarantees for those who find themselves unemployed.

Reasons to be worried: However, the combination of the Covid-19 recession and the accelerating take-up of technology presents grave dangers for many jobs and risks inequality widening – effectively creating a ‘double whammy’ for many low-paid workers.

A huge rise in unemployment is already predicted as the Covid-19 crisis continues.³ Jobs are being lost because many businesses are closed or activities curtailed; because consumers are spending less in high-employment sectors; and because employers

expected the furlough scheme to end this autumn. But the pain in some sectors is set to be greater because the remote and digital business models necessitated by Covid-19 and made possible by new technology translate into fewer jobs.

There are serious risks of widening inequality too. Technology helped save some jobs at the peak of the crisis. But in other areas, the adoption of technology will mean fewer jobs may be needed in future. The interaction between the Covid-19 recession and accelerating automation could now put many jobs at risk. We know that recessions often lead to innovation and faster take-up of technology. But new opportunities tend to open up in occupations, industries and locations with higher pay and higher skills; while people and communities with lower incomes and lower skills are more likely to see jobs disappear through automation. This raises the prospect of widening labour market inequality, and difficult transitions for displaced workers when there are fewer alternative jobs to move into.

We’ve seen this already in the crisis. It is mainly low-paid employees who have been furloughed and now risk unemployment; while high-paid, high-skilled workers have benefited from new trends like remote working. Looking forward, our analysis shows that many of the sectors, peo-

ple and places hardest hit by the Covid-19 crisis are also at higher risk of having their jobs displaced by automation.

The unique combination of the Covid-19 recession and the rapid take-up of automating technologies risks hitting the same people and places twice. Jobs in some sectors – like retail and hospitality – are likely to be hit both by the immediate effects of the Covid-19 emergency and by accelerating automation. Some communities are at particular risk of this double threat too. All this poses a risk of enduring structural unemployment and rising inequality.

How government, employers, trade unions and communities respond now to this dual challenge is crucial and will shape the future of work for the next decade. We are at a critical crossroads where the decisions taken in the coming weeks and months will determine the shape of the labour market for the next decade. Unless the combined challenges of the Covid-19 crisis and automation are quickly addressed, we risk widening inequality and causing deep economic scars for a generation.

Our findings

Jobs have been saved during the Covid-19 crisis because of new technologies

Some industries like hospitality have struggled to operate or remain profitable while social distancing measures have been in place. But many other sectors have been able to adapt, embracing new technologies and modes of working in order to survive. In April almost half of people in employment worked at home at least part of the time – a transition enabled by technologies like high-speed internet, video communication platforms, cloud storage, virtual private networks (VPNs) and work collaboration tools.⁴

Small and large employers have also shifted to digital channels and moved their operations online: in spring this year, the share of retail sales made digitally increased from around 20 per cent to 30 per cent almost overnight, with small retailers able to keep going by offering collections and home deliveries.⁵ Public services migrated to digital appointments and remote delivery with impressive pace and flexibility.

In many industries the crisis has demonstrated a high level of digital readiness, with

companies able to quickly adapt, experiment and persevere in extraordinary times. The pandemic has, for many employers, brought forward the adoption of new technologies by a number of years, and in lots of cases we should expect these changes to be positive and permanent.

There is no doubt that the short-term economic consequences of this pandemic would have been even more severe without the capacity of technology to allow many people to work electronically and virtually and to allow sectors like e-commerce and education to continue despite the disruption. The use of new technologies, adopted at pace, also has the potential to boost productivity and trigger further innovation and growth as the economy recovers, while more flexible and home working has the potential to permanently improve the quality of some jobs.

The Covid-19 crisis is set to accelerate job-replacing technology change meaning that vulnerable sectors face a 'double whammy'

The same rapid adoption of new technology that has saved jobs in some areas during the Covid-19 crisis is putting other jobs at heightened risk, in fields such as hospitality and high street retail. This is because, in many of the sectors worst affected by this year's crisis, the adoption of new technology is associated with high levels of job replacement.

Past recessions have led to the acceleration of automation, with businesses often replacing low-skilled employees with technology to reduce their payroll costs and risks. A study by the National Bureau of Economic Research showed that in the US, in three recessions over the last 30 years, 88 per cent of job losses took place in routine, highly automatable occupations.⁶ This effect could be even more severe in the wake of Covid-19 because technology adoption has played such a large part in employers' responses to the pandemic. In a survey for the World Economic Forum, 94 per cent of UK companies said they were accelerating the digitalisation of tasks as a result of Covid-19, and 57 per cent said they were accelerating the automation of tasks.⁷

Job replacement is happening within workplaces, when newly introduced technology reduces the need for human labour. But it is also happening as a result of the dramatic changes in spending patterns we

are seeing this year, affecting what, where and how people buy. The shift to online shopping has helped non-food retail businesses keep trading through the crisis but recent announcements from the big retailers suggest it will also lead to fewer jobs on the high street, even when the Covid-19 crisis is over. Meanwhile home working has kept countless small and large businesses going but it has also reduced spending in business districts and led to less work for hundreds of thousands of people who support offices, like cleaners, receptionists and maintenance staff.

61 per cent of the jobs furloughed came from the sectors where workers face the highest risk of automation

The dual threats of the Covid-19 crisis and accelerated adoption of technology are especially acute in some sectors, which will need specific crisis plans to see them through the coming turbulence. This impact can be seen in analysis for the commission which shows the sectors that are vulnerable to a 'double whammy' from the Covid-19 recession and from automation (figure 2). We compared sector-level take-up of the furlough scheme with ONS data published in 2019 projecting which fields are most vulnerable to automation. These figures were produced by examining individual job tasks and assessing the feasibility of replacing each with automating technologies.⁸

In total, 61 per cent of the jobs furloughed up to 30 June 2020 (5.8 million of the 9.6 million furloughed jobs) came from the business sectors where workers face the highest risk of automation. This group comprises the third of sectors where automation is most feasible. The tasks carried out by workers in these industries are assessed to have an average feasibility of automation of around 50 per cent or more.

Within this group 3.1 million furloughs (32 per cent of the total) came from just four sectors where jobs are projected to face the greatest risk of automation: 1) food and beverage service activities (1.3 million furloughs); 2) accommodation (350,000); 3) retail (1 million) and 4) motor sales and repairs

Figure 1: 6 in 10 of jobs furloughed were in the third of business sectors with work at highest risk of automation

Sectors at high risk of automation (ie top third of 85 sectors in the ONS assessment)	Number of workers furloughed	Percentage of total furloughed workers in the sector	Percentage of workers in the sector furloughed	ONS score for feasibility of automation (and rank out of 85 sectors)
Food and beverage service activities	1,346,100	14%	77%	63% (1)
Retail trade, except of motor trade	1,028,700	11%	36%	58% (3)
Wholesale trade, except of motor trade	498,100	5%	44%	54% (11)
Specialised construction activities	477,200	5%	57%	50% (25)
Motor vehicle trade and repairs	379,300	4%	71%	58% (4)
Accommodation	347,400	4%	80%	60% (2)
Sports activities and amusement and recreation	316,300	3%	70%	49% (27)
Services to buildings and landscape activities	266,600	3%	40%	54% (10)
Other personal service activities	215,900	2%	70%	54% (9)
Land transport and transport via pipelines	212,200	2%	38%	52% (14)
Smaller sectors at high risk of automation	729,500	8%	25%	-
All sectors at high risk of automation	5,817,300	61%	47%	55%
All sectors	9,601,700	100%	32%	44%

Sources: The probability of automation in England, ONS 2019; Coronavirus Job Retention Scheme statistics: August 2020, HMRC 2020. Note: data is for all furloughed up to 30 June 2020

(380,000). The tasks carried out by workers in these industries are assessed to have an average feasibility of automation of more than 57 per cent.

The furlough data shows that the hospitality industry was hit hardest by Covid-19 (ie the two sectors ‘accommodation’ and ‘food and beverage services’ which include hotels, restaurants, cafes and pubs). During the first lockdown over three-quarters of eligible employees in both these sectors were off work and even by the end of August a quarter remained on furlough.⁹ Restrictions and closures were then reintroduced in the autumn and many hospitality businesses have struggled to operate viably while social distancing rules have remained in place.

This is also the sector where jobs are at greatest risk of automation over the medium and long term. According to the ONS study, jobs in food and beverage services are made up of tasks with an average feasibility of automation of 63 per cent; in accommodation the risk is 60 per cent (compared to an average risk for all sectors of 44 per cent).¹⁰ This

assessment reflects how tasks like checking into hotels or ordering food and drink can increasingly be done through apps and touchscreens rather than by people. Over the next decade advances in software and robotics are expected to expand the range of such routine cognitive and manual tasks that can be automated.

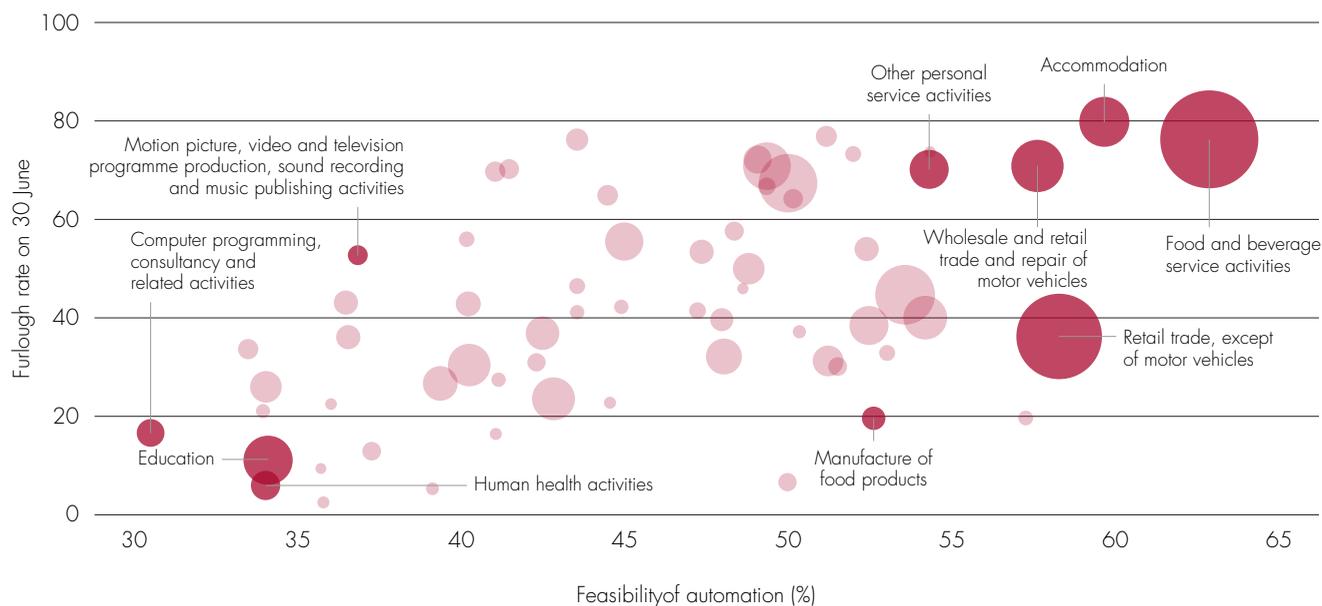
As a result of the pandemic technologies that might otherwise have been adopted over many years have been fast-tracked, as hospitality businesses seek to re-open safely and with costs that make sense given their expected revenues. Customers have become accustomed to scanning barcodes for menus and ordering food via apps on phones or tablets; innovations that will in time reduce the need for waiting staff and allow food retail businesses to significantly cut costs. This means that hospitality businesses may work very differently – and with fewer people – even after social distancing has ended.

Similarly, non-food high street retailers have been affected heavily by lockdown and social distancing measures, and also

have many jobs susceptible to automating technologies. People can increasingly shop and trade online rather than in store, and automation and robotics can take over more logistics. Even before the Covid-19 crisis, shopworkers we heard from in 2019 at our focus group in Doncaster were worried about technology replacing their jobs or reducing the quality of their work – for example by meaning they would spend more time dealing with computer orders than helping people in the store. The Covid-19 crisis has accelerated the pace of change.

In the short term, there are likely to be more jobs in warehouses and delivery, and fewer on the high street – with companies like Tesco and Amazon hiring to support online shopping. But according to the ONS analysis, many of those logistics tasks are themselves candidates for automation in the medium term. ‘Postal and courier activities’ and ‘warehousing and support activities for transportation’ are both sectors with low furlough rates this year where the ONS projects a high likelihood of automation in the

Figure 2: Many sectors hit hard by Covid-19 also have high exposure to job automation (top right of chart). Sectors with low risk of automation have mainly been less badly hit by the 2020 crisis (bottom left)



Source: The probability of automation in England, ONS 2019. Coronavirus Job Retention Scheme statistics: August 2020, HMRC 2020. Note: the size of the circles indicate the number of employees furloughed in each sector. Data is for all furloughs up to 30 June 2020. Sectors with fewer than 17,500 furloughs are excluded

future. Food manufacturing is another sector in this position. We discuss the needs of jobs facing these medium to long-term risks in other chapters.

There are also some sectors where jobs have been hit very hard by Covid-19 that should be better placed in the longer term. For example, 70 per cent of eligible employees were furloughed in ‘creative, arts and entertainment activities’ but this sector is ranked 59th out of 85 in terms of risk of automation. Government policy should focus on getting the creative industries and others in a similar position through the short-term crisis so that skills are not lost and they can grow in the future.

But the most urgent and substantial challenge is for those sectors faced with the ‘double whammy’ where jobs are being suspended by Covid-19 and will remain highly vulnerable when the immediate crisis is over – such as hospitality, retail and the motor trade. These are all high employment sectors, together accounting for 6 million workers.¹¹ Many of them do low-paid, often entry level jobs, which are

important for young people getting started in the labour market or for those who have been unemployed.

Some firms in these vulnerable sectors will cease trading entirely, and many that survive may significantly reduce their headcounts, in part by using technology to reduce face-to-face contact with customers and colleagues. And the adjustment process for those whose jobs are changed or replaced by technology is likely to be much harder during a recession as there are fewer vacancies suitable for those displaced. We saw this in the 1980s when the combination of deindustrialisation and a wider national recession hit coal and steel communities particularly hard.

In the Covid-19 recession, the lack of entry-level jobs in high-employment sectors will pose a unique challenge: the hardest hit sectors are those that have high levels of employment, and usually provide important opportunities for young and unemployed people moving into the labour market. As the Resolution Foundation notes: “In the previous recession, hospitality and non-food retail accounted for a fifth of all moves from

unemployment to employment, while only accounting for a tenth of all jobs. The sectors which are less affected in this crisis don’t hire as many unemployed workers.”¹² The foundation warns that the hospitality sector alone provides one-in-five entry-level jobs for young people entering the labour market for the first time, but has accounted for more furloughs and job losses than any other sector. The combined impact of a Covid-19 recession and accelerated automation in sectors like hospitality and retail could therefore mean that laid-off, low-skilled jobseekers could find it much harder to find alternative employment even than in previous recessions.

Inequality is likely to rise as low-paid and disadvantaged workers are at greater risk from the Covid-19 recession and from automation

In the same way that some sectors are disproportionately affected by the combination of the Covid-19 crisis and automation, so too are some categories of workers. The make-up of the workforce in the sectors facing the

greatest challenges means there is a sharp disparity between those who are benefitting from technological responses to the crisis, and those who are being hit – whether by furlough, reduced hours or unemployment. The lowest-paid, least-skilled, youngest and oldest workers are most likely to lose out.

The Resolution Foundation reported that 42 per cent of employees in the bottom earnings quintile were either furloughed, lost their jobs or worked fewer hours in April than at the beginning of 2020, compared to under 15 per cent of the highest fifth of earners.¹³ When the furlough scheme ends, the lowest paid are the ones most likely to become unemployed or see their earnings permanently fall. This will have a disproportionate impact on women, younger and older workers, disabled people, those with low skills and people from many minority ethnic backgrounds.

Mothers have been particularly affected because they have been unable to secure childcare during the crisis. A survey of mothers by the charity Pregnant then Screwed found that a lack of childcare was a factor behind almost half the Covid-19 redundancies reported to them and two thirds of cases of furlough or reduced hours.¹⁴ Women are also far more likely to be in jobs at high risk of automation over the medium to long term. According to the ONS analysis, women do seven in every 10 jobs at the very highest risk of automation.¹⁵

Higher earners are far more likely to be in jobs that enable them to work from home, benefiting from new technology to adapt and safeguard their work.¹⁶ Shifts to remote working and the adoption of new technologies are therefore benefitting some categories of workers more than others, and it is disproportionately high-paid, high-skilled professionals who are reaping the rewards.

On top of these immediate impacts, lower paid and more marginalised workers are also likely to be disadvantaged by the acceleration of automation triggered by Covid-19. Before the crisis, ONS analysis showed that the jobs with the most tasks open to automation were overwhelmingly occupied by people with low skills and from more disadvantaged backgrounds (see chapter two).

Christopher Mims, technology columnist for the Wall Street Journal, summarises the position from an American perspective: “The pandemic is a turbo boost for

adoption of technologies that ... could further displace lower-wage workers. It could also help explain the ‘K’ shaped recovery that many pundits have observed, in which there are now two Americas: professionals who are largely back to work, with stock portfolios approaching new highs, and everyone else.”¹⁷

Some places will be affected severely by the combination of the Covid-19 crisis and automation

Some places are likely to be badly affected by the combination of Covid-19 and accelerating take-up of technology. We assessed which local areas have been worst hit by Covid-19 by calculating the percentage of the economically active population that have either been furloughed, moved onto universal credit or participated in the self-employment income support scheme. Our analysis shows that many of the communities worst hit so far by Covid-19 also contain a mix of jobs that make them vulnerable to automation. These areas are mainly towns or rural communities already facing economic challenges.

City centres have been heavily affected by the short-term effects of the Covid-19 crisis as office staff switched to working from home, and service businesses serving them lost custom or were closed.¹⁸ For example London boroughs have had among the highest proportions of displaced workers this year. Economists such as David Autor are already raising questions about how far those hospitality and office worker services will return, and how far city centres will need to fundamentally change as a result.¹⁹ However, cities also have many high-skilled jobs that are harder to automate. The experience of previous recessions suggests that their diverse economies and skills bases should make them more resilient and able to generate new job growth to replace jobs that are lost once the economy recovers and the Covid crisis recedes.²⁰

There are also places that have experienced less than average pressures during the Covid-19 crisis, but which face significant long-term challenges because they have a mix of jobs with a high risk of automation. Examples include Cope land, Boston, Preston, North Lincolnshire and Coventry. These are places with high proportions of jobs in agriculture, food production, manufacturing and distribution; sectors that have continued during

the crisis but where automation could replace work in future.

The areas of most concern, however, are those at risk of a ‘double whammy’ – they have been disproportionately affected by Covid-19 and also have many jobs vulnerable to automation. Almost all of these local authority areas comprise towns and villages not large cities. Of the 28 areas that are within the worst quarter of places for both Covid-19 impacts and vulnerability to automation, 25 are made up of towns and villages and only 3 are cities or parts of cities (see figure 3).

Many of these communities rely on sectors such as hospitality, tourism or general manufacturing, or they are commuter towns catering for lower skilled workers in sectors like retail or support services. They are spread across all regions of the country – with the places where the ‘double whammy’ risk is greatest including Harlow, Scarborough, Pendle, Tamworth and Sandwell. Some of the places on the list are coastal or rural but others are large or medium-sized towns somewhat removed from their nearest economic centre in places like Essex, the West Midlands and Greater Manchester. Coastal, rural and ex-industrial communities have strengths and advantages that policy makers often overlook, but they also tend to lack the economic attributes which make places more resilient, such as economic diversity, good communication links, higher levels of skills and broad, deep labour markets.

We do not yet know which sorts of places will be able to recover fastest from the short-term impacts of Covid-19. For now, we remain very concerned by the prospects for city centres and high streets over the coming months, with office workers and shoppers likely to stay away in large numbers for as long as public health restrictions remain in place. But at this stage we can’t say what changes will become long-term trends and how this will affect different communities.²¹

Similarly, we don’t know whether the regionally unequal incidence of coronavirus infections and resulting social restrictions will have a lasting effect. During the early autumn, many places in the north of England were placed under local restrictions impacting businesses, jobs and the economy, at a time when government support was being reduced across the UK. Any return to a system of local variations in lockdown measures, without adequate financial

Figure 3: Towns and rural areas make up 25 of 28 'double whammy' areas in England (ie in the worst hit quarter of local authorities for both the medium-term risk of automation and immediate labour market impacts of Covid-19)

Rank (combined risk)	English local authority area	House of Commons library town/ city classification	County	Number of workers relying on government support following Covid-19	ONS score for risk of automation
1	Harlow	Large town	Essex	50%	53%
2	Scarborough	Large town	North Yorkshire	46%	51%
3	Pendle	Small town	Lancashire	47%	50%
4	Tamworth	Large town	Staffordshire	44%	51%
5	Sandwell	Medium town in conurbation	West Midlands	45%	50%
6	Arun	Large town	West Sussex	45%	50%
7	Blackpool	Large town	Lancashire	45%	49%
8	North Norfolk	Village or smaller	Norfolk	43%	50%
9	North Devon	Village or smaller	Devon	43%	50%
10	Castle Point	Medium town	Essex	41%	52%
11	Thurrock	Large town	Essex	44%	49%
12	Redditch	Large town	Worcestershire	45%	49%
13	Wyre Forest	Medium town	Worcestershire	43%	49%
14	Oldham	Large town in conurbation	Greater Manchester	42%	49%
15	Stoke-on-Trent	City (not core city)	Staffordshire	41%	50%
16	West Devon	Village or smaller	Devon	42%	49%
17	Rochdale	Large town in conurbation	Greater Manchester	41%	50%
18	Dudley	Medium town in conurbation	West Midlands	42%	48%
19	Blackburn with Darwen	Large town	Lancashire	40%	50%
20	Rotherham	Large town in conurbation	South Yorkshire	41%	49%
21	Wolverhampton	City (not core city)	West Midlands	41%	49%
22	Knowsley	Core city (outside London)	Liverpool city region	40%	50%
23	Braintree	Medium town	Essex	43%	48%
24	Cornwall	Village or smaller	Cornwall	42%	48%
25	Tameside	Medium town in conurbation	Greater Manchester	41%	48%
26	Salford	Large town in conurbation	Greater Manchester	42%	48%
27	East Staffordshire	Large town	Staffordshire	41%	48%
28	Selby	Village or smaller	North Yorkshire	41%	48%

Sources: The probability of automation in England, ONS 2019; Self-Employment Income Support Scheme (SEISS) Statistics: July 2020, HMRC 2020; Coronavirus Job Retention Scheme statistics: August 2020, HMRC 2020; Annual population survey: April 2019-March 2020, ONS 2020; City & Town Classification of Constituencies & Local Authorities, House of Commons Library 2018. Notes: Risk of automation is for England in 2017. Covid-19 impact includes: UC out of work claimant increase (Feb-June 2020) + Self-employment income support scheme claims (30th June 2020) + Furlough claims (30th June 2020) as a proportion of the economically active population (year to March 2020); Data is for local residents not workplaces

assistance, could have longer term consequences for the regional economic divide.

The ability of local labour markets to recover will depend upon a combination of factors: their underlying economic resilience and diversity, the sharpness and nature of the immediate labour market impacts of the crisis, and the long-term outlook for the sorts of jobs found in the area. Thinking about prospects over the medium term, we are particularly concerned for the areas both hit hard by the economic effects of Covid-19 and with many jobs at risk of automation.

Government, employers and trade unions need to respond urgently to the potential permanent shifts in work

The government's economic response to the first wave of Covid-19 was effective in the short term, but ministers have done little to address the 'double whammy' of Covid-19 and technology change

In the first six months of the Covid-19 crisis, the government introduced some extremely important and successful measures to support employment, working in partnership with employers and trade unions.

During the initial lockdown period furlough (the coronavirus job retention scheme), the self-employment income support scheme and a slew of business support initiatives helped save jobs and livelihoods. Then in the summer the government introduced temporary measures targeting the hospitality, tourism and residential property sectors. It also promised new or accelerated spending to create jobs and support unemployed people, including the new Kickstart scheme for the young unemployed.

Many of the initiatives during this period were developed in dialogue with employers and employee representatives. The willingness of the government to work with major social partners when faced with an unprecedented threat to jobs was, at that point, striking and very important. But by autumn, as the Chancellor continued to reduce support for jobs and businesses

while some areas – especially the north of England – still faced restrictions, the social partnership approach started to fray.

The government came under increasing pressure from mayors and councils, the devolved administrations, the CBI, the TUC, small businesses and self-employed groups to restore and increase support. Following the second England-wide lockdown, ministers eventually extended assistance until March next year, although the late changes have made it harder for employers to plan.

Meanwhile there have so far been only limited signs that the government recognises the special risk that the combination of Covid-19 and technology change poses. There are likely to be high and permanent job losses in some sectors and businesses and particular challenges for many workers of all ages who will need to reskill and find work in new occupations. Those on furlough for as long as a year without any training or work will find it harder to obtain new work if their jobs do not return after the crisis. People face the risk of prolonged unemployment or of cycling in and out of insecure, low-skilled work; both of which could permanently reduce their employment opportunities and productive potential.

The government has said it will introduce reforms to the skills system in April 2021, including a 'lifetime skills guarantee' that will allow adults without A-level equivalent qualifications to train towards them for free. But the spending review set out very little detail about what will be on offer and the new funding earmarked is far less than is needed for an adult skills revolution (just £375m extra for adult skills in 2021/22). Meanwhile ministers have scaled up employment support for jobseekers and are introducing the Kickstart job guarantee scheme for young people. But the plans do not include any substantial new training entitlements for the unemployed. There is a disconnect between policy on employment and skills.

Government, employers and trade unions need to respond urgently to the potential permanent shifts in work that are likely now to be taking place as a result of both the Covid-19 crisis and the technology take-up it has triggered.

Recommendations

In these extraordinary times, strong collective leadership is needed to navigate a safe route through the Covid crisis – to protect

jobs, support people whose work might be at risk, avoid hardship and widening inequality, and to help the economy bounce back with better jobs for the future. The government needs to work urgently with employers and unions on a major plan to support the labour market through the recession and beyond – including targeted support for the sectors and workers where most jobs are at risk as a result of both Covid-19 and technology. As part of this process employer organisations and unions should work together on joint proposals.

1. Provide immediate training for furloughed workers and more support for freelancers (England/UK)

The government must continue to support jobs and businesses hit by Covid-19 restrictions during the winter and into 2021. Measures like the furlough scheme and grants for many self-employed workers will help prevent jobs that would otherwise be viable being permanently lost. Withdrawing subsidies and leaving the market to adjust as some have advocated would lead to much higher levels of unemployment, as well as permanent damage to sectors which would otherwise bounce back when Covid-19 restrictions are lifted.

But the government should make two important additions to the current schemes:

- **Provide free training or education courses for all furloughed workers:** By March 2021, some workers will have been without work or training for twelve months. Employers should be encouraged to provide on-the-job training to them during times they're off work but being paid. But where employers are unable to provide training, furloughed workers should be offered free courses through the Union Learning Fund, Jobcentre Plus or FE colleges (going beyond the free online courses offered through the government's Skills Toolkit initiative). Furloughed workers should also be encouraged to volunteer or find different ways to keep their skills in use.
- **Provide more robust support for self-employed workers** so far excluded from the self-employment income support scheme, including freelancers paid through PAYE, newly self-employed workers and partially self-employed workers who have been excluded from

existing support. A better targeted self-employment support scheme is needed.

2. Introduce new industry plans for sectors where jobs are most at risk (UK)

We need urgent action plans for those sectors which are likely to face big job losses – either temporarily due to public health measures or, in many cases, permanently as a result of the combination of recession and technology change. Examples include retail, hospitality, culture and leisure. We recommend that government, employers and trade unions work in partnership to support high-employment industries where jobs are vulnerable to both the coronavirus recession and to high levels of automation in the coming years. In chapter two we set out the case for a renewed industrial strategy for the medium term, including new sector-specific initiatives. But right now, we need urgent crisis plans for rapid implementation over the coming weeks and months.

Key features of these urgent sector plans should include:

- **Protecting viable work:** In addition to the extension of furlough, self-employment and business support, we need additional targeted measures to help particularly vulnerable sectors. For example, retail and hospitality sector plans could bring together local authorities and high street landlords to help small businesses struggling with rental payments. Plans should include support to help more businesses, employees and – crucially – freelancers use technology to keep operating while Covid-19 restrictions are in place. This is acutely necessary for the arts and creative industries, which face particular challenges: live performances are suspended by Covid-19 restrictions and the self-employed make up a large proportion of the workforce (in the music, performing and visual arts sector, 70 per cent of workers are self-employed).²²
- **Support for workers:** As well as the free training for furloughed workers recommended above, everyone working in sectors where jobs are at high risk from automation and the Covid-19 recession should be targeted with appropriate training courses and career

coaching, through a partnership of employers, trade unions and government. These additional resources for workers in at-risk sectors should be promoted in the workplace, in order to help people build resilience in a changing labour market.

- **Business transitions:** Plans for each sector should promote widespread technology adoption that can help businesses stay viable and grow during the pandemic and into the future. Plans should emphasise that transitions must be managed – for example, comprehensive training should be required when new technology is rapidly introduced. The government should provide additional business support resources to help SMEs adjust.
- **Investment with conditions:** UK government funding to protect jobs now or to support future technology investment should be conditional on commitments from each industry. These should include sectoral promises to increase worker voice and representation, expand opportunities for people from disadvantaged and underrepresented backgrounds, and improve training and the quality of work.

3. Create and support good jobs to absorb unemployment during the recession (England/UK)

The government also needs to provide direct support for job creation. With the risk of huge job losses in coming months, immediately the market alone is not capable of generating sufficient new opportunities in the sorts of jobs that will support the people and places most at risk of unemployment. The government should therefore fund the creation of large numbers of good jobs in growth sectors.

Ministers should focus on sectors with the potential to absorb lots of existing workers quickly, in jobs that offer productive, valuable work. Among these sectors there are a number where good, sustainable jobs can be created directly through public funding – eg low-carbon and digital infrastructure, construction, health, care, early years and education. In July, ministers made a modest start by bringing forward some infrastructure spending, announcing green home grant vouchers, and providing funding to help children and

young people catch up on lost teaching time. But they need to go much further:

- **Capital investment increases** announced for the 2019–2024 parliament (as well as government lending and loan guarantees) should be front-loaded and target priorities that will generate good jobs quickly and on a widely dispersed basis – eg energy efficiency retrofitting, social housebuilding, digital connectivity, roads, flood defences etc.
- **Public service spending** should be used to create new jobs in sectors like education, health and care to respond to rising need and to increase the resilience of key public services. A mix of temporary and permanent initiatives are needed, for example more teaching support roles for education catch-up and a permanent increase in social care jobs, which the Covid-19 crisis has shown are badly needed. Supporting early years and childcare is also particularly important as this will enable parents – and particularly mothers – to work the hours they want to as the economy grows.

The government, businesses and trade unions should work together on plans for industries where large numbers of jobs can be created quickly (to sit alongside plans for the sectors at greatest risk of shrinking – see recommendation 2). This should start with those sectors that can be expanded quickly through capital investment or public service spending. These plans should specify what innovation, training and workforce reform is expected in the context of extra public funding. New workforce strategies should also be agreed for sectors where workers are mainly employed directly by government.

Jobs in these growing sectors need to be redesigned to increase the use of technology, improve outcomes and create better work. This is particularly true in occupations that have been traditionally undervalued such as social care and early years, where greater use of technology can underpin the creation of better jobs with higher skills and earnings. Meanwhile jobs in construction, infrastructure and zero-carbon transition need to be designed to absorb lots of workers while also sup-

porting innovation and new technology. There is potential for significant short-term growth in jobs in these sectors but they are heavily dependent on Government policy, regulation and funding decisions.

Setting aside publicly funded jobs, industries with the potential to grow include the creative and technology sectors. That means the government needs to work closely with the arts, culture and tech sectors to prevent long-term capacity being destroyed by the current Covid-19 crisis. In each of these sectors, ministers should be playing an active role in establishing a positive environment for new jobs to be created. An initiative from which to take inspiration is Arts Council England's digital R&D fund for the arts, which explored new ways technology can be used to engage audiences and generate new revenue streams.

4. Introduce a 'work and training' guarantee for the unemployed during the recession (UK)

The scale of potential job losses and job changes as a result of Covid-19 and automation means there is an urgent need for extra support for those who have lost their jobs or are at risk of becoming unemployed in the months ahead. People who need immediate support and training include employees who have been made redundant, self-employed people whose work has dried up and young people leaving education.

The unusual nature of this recession and also the wider context of changes to jobs and sectors as a result of technology means that there should be a much stronger emphasis on training and skills than in previous recessions, when the focus has been mainly on returning people to any kind of available employment. Traditionally the DWP has been wary of supporting training as an alternative to finding a job because of its commitment to reducing unemployment. We understand the logic behind this 'work first' viewpoint but believe new approaches are needed in this labour market that explicitly support people to 'work and train' together.

The government has made a start with July's Plan for Jobs. This includes the expansion of existing support programmes (including traineeships and skills academies) and the introduction of the Kickstart

scheme, which aims to fund six-month work placements for 16 to 24-year-olds on universal credit at risk of long-term unemployment. But these initiatives can only be the beginning: we want the government to ensure that jobseekers (of all ages) are offered both the chance to work and high-quality training relevant to their needs and local employment opportunities.

We therefore recommend that during the recession unemployed people claiming universal credit or jobseeker's allowance are provided with structured support to help them to 'work and train', including substantial expansion and development of the Kickstart scheme. Training should also be available to people out of the paid labour market because of caring responsibilities.

Key elements of a 'work and train' guarantee for people out of work should include:

- **Early support:** – Intensive support should be available immediately for new benefit recipients and people who have not worked recently (eg people who have been furloughed, have recently left full-time education or are looking after young children).
- **Skills assessment:** Everyone should be promptly assessed for their employability-related and technical skills. Careers coaching should help people consider their long-term options (and also seek to prevent gender stereotypes with respect to skills and careers choices).
- **Training while job seeking:** Benefit recipients of all ages should be supported to access training immediately. Those without basic employability-related skills (including basic digital skills) should be offered intensive training and support from Jobcentre Plus; others should be encouraged to enrol onto a substantial further education course aligned to local employment opportunities (while continuing to seek work, in the case of over-21s).
- **Pathways into full-time training:** Jobcentre Plus should support people aged 16 to 21 to return to full-time education and treat this as equivalent to supporting them into work. Work coaches should aim to place claimants with low

skills of all ages into apprenticeships rather than conventional jobs.

- **Guaranteed jobs with training:** After a significant spell without work all jobseekers should be offered a 'work and train' guarantee, starting with young people who are likely to be hardest hit by the recession. The guarantee should comprise the offer of either full-time education, an apprenticeship or a 'Kickstart' job with accompanying training.

Kickstart jobs should always come with training

The government's new Kickstart programme for under-24s should form part of a full-scale young people's guarantee where every unemployed young person is guaranteed either full-time education or a job with training. Currently it is unclear whether the 250,000 Kickstart places the government is funding will match the number of young people who are unemployed.

Kickstart jobs should always come with training: everyone on the Kickstart programme should be offered additional training via new or existing skills entitlements if learning is not included in their job placement. Once this 'work and train' guarantee is in place for under-25s it should be expanded to cover unemployed people aged over 25, especially people who face particular difficulties finding work and those with no skills or qualifications who are most vulnerable in the labour market.

The rollout of Kickstart needs to happen at pace and involve local authorities and third sector organisations in both providing places and brokering places with local private sector employers. The expansion of apprenticeships will also require additional public and third sector apprenticeships. Local authorities should play a key role in delivering these policies so as to enlist sufficient local employers to match the number of unemployed people who need work or training (local brokers are also needed to bar companies from participating if they have just made significant redundancies in the locality).

5. Fund a major boost in adult training and education during the next 12 months (England)

At a time when continued Covid-19 restrictions and the recession may leave many people unemployed or underemployed we should be substantially expanding the opportunities people have to access training and education so they can boost their skills and employability. We need a huge national skills upgrade for all workers, not just young people. While there are more people wanting jobs than there is work to go around the government should seek to spark an adult learning revolution: modest financial support could nudge hundreds of thousands of people to choose to work and learn. Many employers are already responding accordingly, with 48 per cent of companies surveyed by the World Economic Forum saying they are accelerating the implementation of upskilling and reskilling programmes in response to the pandemic.²³

Ministers should use the launch of the National Skills Fund to make a truly transformative adult education offer, initially as a time-limited recession initiative

Expanding education, training and apprenticeships will help the economy respond to automation and technology as well as helping individuals through the Covid-19 crisis. The government has made tentative steps forward with the announcement of the National Skills Fund. Under this banner, it has unveiled the 'lifetime skills guarantee' for people of all ages to undertake a free level 3 qualification; employment-focused short course 'bootcamps'; and the promise that FE institutions will be able to access the HE tuition loan system to fund higher technical courses. Following the Covid-19 crisis, ministers have also provided some extra funding for apprenticeships, traineeships and 18 and 19-year-olds staying on at college.

However, many of these policies are just vague aspirations, at a moment of nation-

al crisis. They do not have enough money to come anywhere close to meeting their ambition. The value of the National Skills Fund (£2.5bn over the parliament or £375m in 2021/22) can fund only limited extra student numbers. Next year just £138m is available for the new level 3 guarantee and more 'bootcamps', and £127m for training and careers support for the unemployed.²⁴ In total the National Skills Fund will only reverse around a fifth of the cuts made to adult education and apprenticeships spending since 2010.²⁵

The government needs to go much further. Ministers should use the launch of the National Skills Fund to make a truly transformative adult education offer, initially as a time-limited recession initiative. These measures will require additional funding but, as they will benefit both the demand side and supply side of the economy, they will help support a stronger recovery and should form an important part of the government's overall fiscal stimulus plans. In addition to our call for free training for furloughed workers (recommendation 1) the package should include:

- **Free technical education for all adults during the recession:** We welcome the government's recent announcement that adults of all ages will be entitled to a free first level 2 and/or level 3 qualification. This right should be available immediately rather than in April. However, during the recession ministers should go further and offer all adults free FE courses in priority qualifications, up to degree equivalent, including people who have already obtained a qualification at the same level. Local and sectoral bodies should work with government to identify eligible qualifications in response to local labour market needs.
- **An unlimited number of apprenticeships:** During the recession, ministers should promise to fund an unlimited number of apprenticeships, subject to existing conditions on employers and training providers being met. Wherever an employer wishes to offer an apprenticeship (whether to a school leaver or a mature worker), the government should pay for the training (even if spending exceeds the amount allocated to large employers through their apprenticeship levy accounts). Employers

would have to pay wages and release employees for at least a day a week. Bonuses would be available for new recruits beginning apprenticeships (extending the policy announced in the July 2020 Plan for Jobs).

During the recession ministers should promise to fund an unlimited number of apprenticeships

- **Financial support for selected FE students:** People aged 18 to 21 studying towards any full-time FE qualification should receive financial support during the recession (either by being eligible for universal credit without seeking work, or through a flat-rate payment similar to education maintenance allowance). Similarly, people of all ages studying full-time towards a first level 2 qualification should be eligible for universal credit without having to seek work. Anyone working part-time and studying part-time in FE should also be able to receive UC without any expectation that they will increase their earnings before the end of their course.
- **Funding and bursaries for career change courses:** The government should increase funding for tuition and bursaries for higher education courses geared towards career changes into occupations with existing skills shortages and strong growth prospects. Building on mid-career schemes to attract more public sector professionals, funding should be available to train for any occupation where there are skills shortages and people can start work after one or two years' study.
- **Expand and develop the Union Learning Fund:** Instead of abolishing the Union Learning Fund as the government has proposed, this publicly funded, union-led programme to promote education and training in the workplace should be expanded. In particular it should be used to target furloughed workers (see recommendation 1). Joint working between unions and employers on staff development, learning and skills should increase. ■

Chapter two: A fair share in the rewards

IN CHAPTER ONE we focused on the immediate challenges posed by the ‘double whammy’ of Covid-19 and rapid technology change that reshapes or displaces jobs in the short term. In this chapter we turn to the medium term, looking over the next decade. In this timeframe it is clear that new technology provides the potential to realise extraordinary new economic, social and environmental benefits. Different kinds of technology will improve work and create new roles, as well as disrupting and replacing existing jobs.

Overall, improvements in technology should boost productivity, drive economic growth, and create wealth. We want to see a future where people in work receive a fair share of these rewards – both as the economy recovers in the next few years and across the 2020s. The dividends of new workplace technology need to translate into higher earnings for all – or into shorter working hours, if that’s what people prefer.

Rewards from technology must therefore be fairly shared across the whole economy, between employees and business owners, and between workers in different circumstances: people in different sectors and occupations; residents of cities, towns and rural areas; people with higher and lower skills; women and men; and younger and older workers. Technological devel-

opments should be used to narrow inequality not to widen it.

Reasons to be optimistic: Technology is a force for good. It can help us boost productivity, tackle climate change, meet the Covid-19 crisis, reduce poverty, and make our lives easier, healthier and safer. Throughout our industrial history we have seen the benefits from new technology translate into higher living standards for all – including higher pay and better, safer jobs than generations ago. It has also been associated with a gradual decline in the hours each person works as a proportion of their lives.²⁶

With extraordinary new technologies already being adopted in workplaces or coming down the track over the next few years, there is every reason to believe that these past trends can continue. New ideas, software and machines can translate into people creating better goods and services, in a way that boosts our living standards while reducing emissions of greenhouse gases.

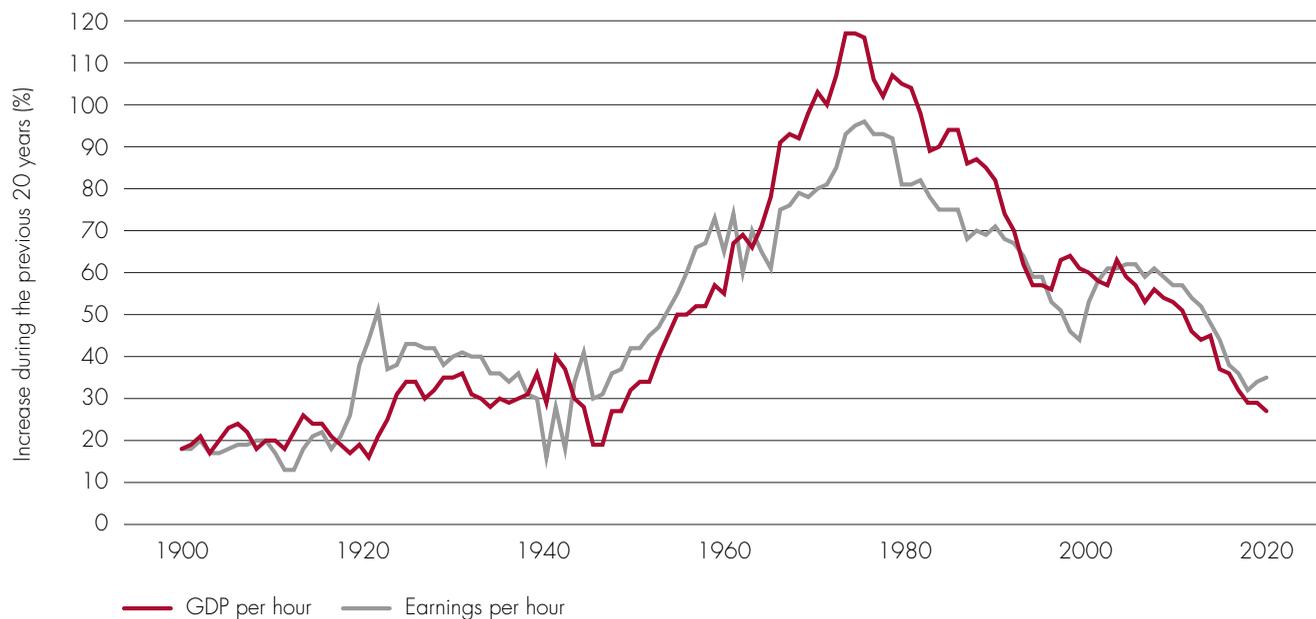
These gains can also be broadly shared. While industrial transitions have sometimes led to damaging increases in inequality – as in the 1980s – at other times they have led to wages and material conditions rising for all, with no worsening in the gap between the bottom and the top, most notably in the decades of transformation after the second world war.

Reasons to be worried: Each wave of technological change has also brought dislocation: as work changed, some jobs were destroyed, others created and many people and communities have suffered along the way. The rewards from technological change have not always been fairly shared, and the disruption can lead to unemployment, exploitation and injustice. Even before the Covid-19 crisis we were worried about the impact of technological change on employment, pay and the quality of jobs for low-skilled workers. The combination of Covid-19 and accelerating automation has hugely increased those risks, and the consequences will now be felt not just during the 2020 crisis but for many years to come.

That is why in this chapter we look at the potential impact of changing technology on inequality, and on what needs to be done to make sure that all workers get a fair share of the benefits from technology.

We are at a crossroads. We have many reasons to be positive about new waves of technology which have huge potential to boost productivity and pay and bring benefits for all, rebalancing the unfair distribution of wealth and opportunity. But we have many reasons to be worried because there is a real risk that technology take-up will further polarise the labour market so that those who already have least end up losing most.

Figure 4: Growth in wages and productivity tend to track each other over decades. Both have plummeted in recent times



Source: Bank of England, real terms (GDP deflator)

The future is not determined and we are optimistic about the potential for new technology to bring rewards to all. But it will take new public policy and new partnerships between government, business and trade unions to ensure that those rewards are fairly shared. We need to act. Our research in this chapter suggests that, while it is possible to achieve a fairer share for workers, we are a long way from doing so.

Our findings

New technology is needed to boost UK productivity and pay

Investment in new technology is needed to improve productivity, pay and living standards. In the years before Covid-19 the UK suffered a terrible decade of slow productivity growth (ie the amount produced in each hour of work). The slump in productivity gains was worse than anything seen in the last 250 years – nearly twice as bad as the transition from the post-second world war economic boom to the slowdown of the 1970s. The reasons for the decline include the enduring effects of the 2008 banking crisis and the uncertain-

ty created by Brexit; but another important factor was the waning impact of ICT investments which drove forward productivity growth in the 1990s and early-2000s.²⁷

Flatlining productivity has held back pay and living standards. Before the Covid-19 crisis average weekly pay had only just returned to its level in 2008, the year of the financial crisis (after adjusting for inflation).²⁸ It has been the worst period for pay growth since the mid-19th century and has translated into stagnating household living standards (which are affected not just by earnings but employment levels, demographic factors, housing costs, taxes and benefits). For the poorest households, benefit cuts left incomes after inflation and housing costs no higher in 2018–19 than in 2001–02.²⁹

The long-term solution to the UK's woeful performance on pay and living standards is innovation, investment and technology. Carl Benedikt Frey of Oxford University, who has written about the risks of automation for people in work, told the commission that technological change has a positive effect “over the very long run”, by raising the earnings capacity of workers through productivity growth and reducing the price of consumer goods and services.

However, he warned us that, in the short term, it takes time to adjust: “A lot of people shift into work of worse pay in the short run and as a result of that there are winners and losers.” The UK therefore faces a double challenge – how to make sure our economy benefits from the new technologies needed to boost productivity, pay and living standards; but also how to make sure the benefits are fairly shared and that inequality does not widen along the way.

Historically, average earnings and productivity have broadly risen together, as figure 4 shows. Over the last 20 to 25 years workers have shared in what growth there has been: increases in hourly earnings have slightly exceeded hourly productivity and the percentage of GDP going to workers has not declined, unlike in the United States.³⁰ However productivity growth has been very slow: without better productivity improvements we will not see the improvements to overall pay and living standards we want.

When we took evidence before the arrival of the coronavirus recession, we heard far more concerns about the sluggish adoption of new technology undermining productivity and pay than about rapid job-destroying

automation. We were repeatedly told that the UK is adopting new technologies too slowly, hampering efforts to improve business performance and competitiveness and therefore living standards.

One striking example of the UK's low take-up of automating technologies can be seen in the deployment of multipurpose industrial robots, which hugely increase the productivity of the people who work alongside them. The International Federation of Robotics found in 2017 that the UK had 85 units per 10,000 employees, far lower than France (137), Canada (161), the USA (200), Japan (308), Germany (322) or South Korea (710).³¹

Even in technologies where we have world-beating firms and promising potential for job growth, the wider business community lags behind. For example, the UK is a leader in artificial intelligence, with a third of Europe's AI startups located in Britain.³² But this is not spilling over into the rest of the economy, where AI implementation is generally low. The House of Lords committee on artificial intelligence found that the majority of firms are far behind in their adoption of new technology, including AI, and that this is contributing to the productivity gap between the UK's small cohort of highly productive 'frontier' firms and the long tail of low-productivity 'laggard' businesses.³³ Overall, the gap in productivity between high and low-performing firms is greater in the UK than other rich countries including France, the USA and Germany.³⁴

In our work we saw evidence that technology change in some workplaces can lead to higher earnings. A CIPD survey of employers introducing AI-related technology showed that the increased complexity and skills required resulted in more pay for the employees affected.³⁵ In our visit to Asda's distribution centre in Normanton, West Yorkshire, we saw how new technology and increased productivity has translated into higher pay and more jobs (see page 30). And a spokesperson for the Musicians' Union told us they had been successful in negotiating media agreements on behalf of orchestras throughout the UK, so that musicians can generate additional income in return for rights to record and stream their performances (although concerns about musicians missing out on revenue from streaming services persist across the industry).

The UK lags behind other rich countries in productivity – including France, Germany

and the USA – while we have so much else in common. So there is no reason why good policies cannot help make up the gap. For example, action to tackle the UK's deep geographic inequalities and inadequate intermediate skills could make a real difference.

There are lots of reasons to be hopeful. We are a world leader in innovation with many firms at the frontier of productivity and globally significant technology-enabled sectors like financial services, creative industries and life sciences. We also have a workforce where many have strong skills, with a high number of graduates compared to many other nations and a globally respected university sector. The UK's challenge is to translate innovation into economic returns, both amongst our most productive companies and across the whole economy; something that in the past has sometimes taken decades following the introduction of new technologies.³⁶

Our dismal performance on productivity is the major factor behind the UK's remarkably poor performance on pay growth in recent times: greater diffusion of new technology to increase productivity across the economy will be needed if we want to establish the conditions for increasing living standards over the next decade.

Rapid automation risks high levels of technology-driven job replacement

To share the fruits of technology fairly we need not just rising earnings but high and sustainable levels of employment. Automating technologies have the potential to put jobs at risk: much has been written about the 'rise of the robots' leading to mass unemployment.³⁷ But before the Covid-19 crisis we had seen no evidence that technology change was likely to lead to an overall fall in employment any time soon.

At the start of this year a higher proportion of the UK population were in paid work than at any time apart from the second world war and it appeared that the labour market would be able to adjust to the likely pace of technology change over the next five to 10 years.³⁸ Prior to the Covid-19 crisis, we suspected that many jobs would change not disappear and, where they did disappear, new alternative jobs would be created – both tech-enabled jobs and also jobs in relationship-focused roles like social care. This view was reflected in the views of workers too: a survey conducted by the commission in 2018 suggested that most

were not worried about technology making their jobs redundant (see page 63).

However, the Covid-19 crisis has upended expectations for the labour market in the 2020s, given the huge risks to service jobs in industries like hospitality and retail, discussed in chapter one. Our concerns are not simply for the immediate recession. We are also worried that the unique nature of this downturn could trigger longer term structural unemployment following a sharp cyclical jobs contraction – as the combination of Covid-19 and accelerating automation leads both to more jobs being lost and also to a slower pace of new job creation elsewhere. Our fear is that many jobs lost in the recession will now be replaced permanently by automating technologies, and that a weak post-pandemic economy – globally and domestically – will mean that the pace of new job creation does not match job losses for some time to come. This could create long-term scars affecting individuals and communities. Action needs to be taken to prevent that happening.

Before the crisis, there were widely different views about the potential scale of job change and job replacement likely as a result of technology over the next decade or two. Studies estimated that 5 per cent (McKinsey), 10 per cent (OECD), 30 per cent (PWC) and 35 per cent (University of Oxford) of UK jobs had the potential to be automated using current and emerging technologies.³⁹ In 2019 the ONS produced its own estimates of the likelihood of occupations disappearing, based on an assessment of how easy it would be to replace different job tasks as a result of advances in software and robotics. The study found that 1.5 million workers in England (7 per cent) are at 'high' risk of automation. They come from four occupations: waiting staff, shelf fillers, elementary sales staff and bar staff. Other jobs that are almost as vulnerable include kitchen and catering assistants, farm workers, cleaners, warehouse workers, routine motor repair roles and leisure attendants.⁴⁰

On the other hand, the UK should be well placed to create new jobs in the coming decade. That includes jobs working with or created as a result of new technology – including ICT jobs, manual jobs in logistics, advanced manufacturing jobs and professional roles, from finance to marketing, in companies making the most of new technologies. Other occupations are also likely to expand as a result of changing needs

and preferences – including health, care, education, creative jobs and jobs in zero-carbon transition – and many of these involve relationship-based skills and tasks that are less likely to be at risk of automation. Almost all these occupations grew rapidly in the 2010s and there is good reason to think these trends will continue.⁴¹

However even if the overall level of employment rises towards previous levels, it may not happen quickly. It took four years to return to past employment participation levels after the early 1980s and 2008 recessions, and eight years after the early 1990s recession.⁴² During some past recoveries there has also been significant ongoing dislocation, with high unemployment persisting (as well as economic inactivity and involuntary underemployment) even as the number of jobs increases. This is because the new jobs created have been in different places and in different occupations from those that have disappeared. The strongest example is the 1980s, where unemployment

was still very high in the late 1980s despite overall employment participation returning to pre-recession levels, with some communities and regions particularly heavily hit. Areas like the coalfields saw deep long-term damage to employment and their local economies. It was a period of major industrial restructuring, so there are worrying parallels with today.

Although there is the positive prospect of new job roles and occupations emerging, with different skill requirements, the short-term transition is likely to be very painful during a time of high unemployment.

New technology risks widening inequality and further concentrating power and wealth

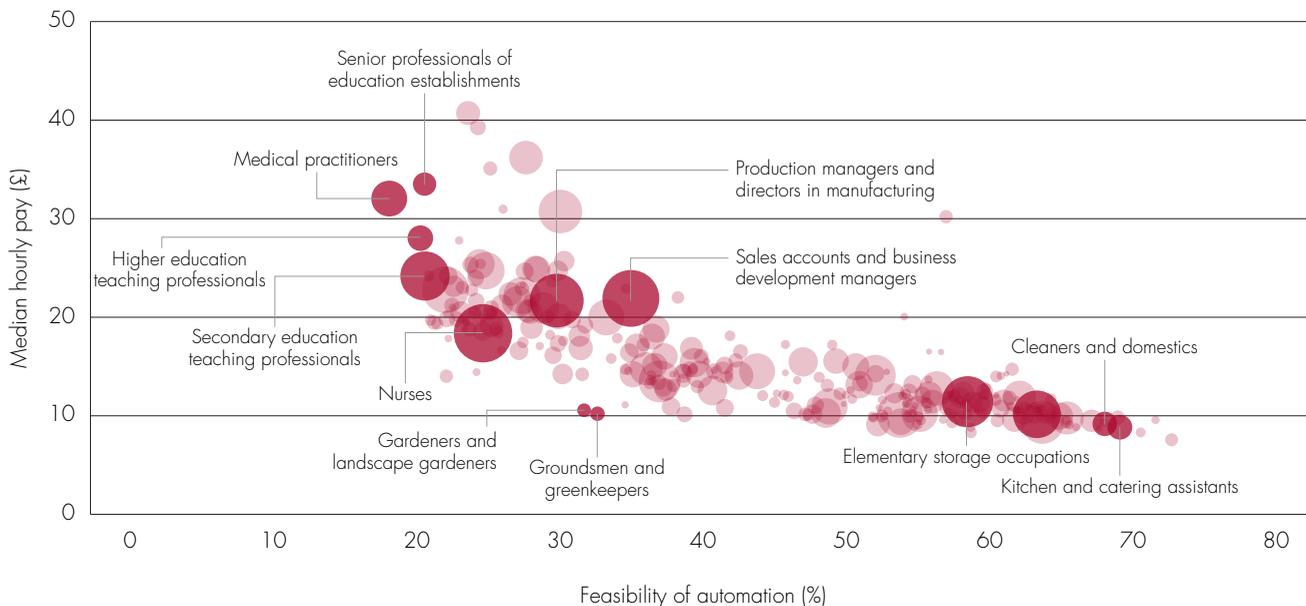
Even if new technology leads to productivity improvements and if employment levels stage a recovery, the rewards of innovation will not necessarily be fairly shared. Too often technological advances sit alongside low-paid work, and when technology is in-

troduced it is not always used as an opportunity to improve pay and conditions.

In our work we saw that many of the jobs with the most tasks at risk of automation are also low-paid and employ large numbers of people (figure 5 shows the correlation between levels of pay and the potential for different occupations to be automated). But when we spoke to people in these occupations, where automation is underway or likely in the near future, they provided no sign that working alongside new technology is leading to improvements in pay or conditions. One bar worker told us that: “We all work long hours, it’s hard work and we get next to nothing. Usually bottom-of-the-barrel minimum wage, that’s it.” As these sectors adopt technology and automation, it is essential that employees share in the benefits.

In recent years pay rises in low-paying sectors like hospitality have been driven by statutory increases in the national minimum wage and national living wage and there is no evidence to suggest that any productivity

Figure 5: The occupations most susceptible to automation are all low-paid



Source: Annual Survey of Hours and Earnings, ONS 2020; The probability of automation in England, ONS 2019. Notes: the size of circles indicates the size of each occupation; risk of automation is for England in 2017

gains have translated independently into rewards for low-paid workers. Indeed research for the Joseph Rowntree Foundation in 2018 found that firm and sector-level productivity improvements rarely translate into higher pay in the UK's lightly regulated labour market, where pay is mainly set according to external market conditions not the performance of firms.⁴³ This contrasts with other European countries where more people are members of trade unions and there are stronger collective bargaining institutions.

Instead it often seems to be higher pay that drives higher productivity rises in low-paying industries, with employers innovating in response to rising labour costs. Researchers at NIESR and elsewhere have demonstrated that the increased labour costs associated with the UK minimum wage led to higher productivity in low-paying industries.⁴⁴

We also heard of examples of highly skilled workers using new technologies but not receiving pay that is commensurate. For example, the creative industries have been through a technological revolution in recent years but continue to have median pay of around £14 per hour, which is only just over the median for all sectors.⁴⁵

Technology-enabled competition in sectors like retail has put pressure on wages across whole industries. Many individuals in traditional 'bricks and mortar' retail feel their wages have stagnated as a direct result of low-cost e-commerce. In Doncaster a retail worker told us: "They want more doing for the same amount of money, they're expecting you to do a lot more but not being paid no more" because "it's social media, the internet. You can get it so much cheaper if you look online." Online retail has facilitated the intensification of price-based competition which has forced all retailers to cut costs, leaving little left over for pay rises beyond those mandated by the government's minimum wage policies.

Downward pressure on wages stems not just from tech-driven competition in markets, but also from reduced bargaining power for workers whose jobs are at risk of significant or total automation. As firms shed these jobs, competition for roles requiring similar skills will intensify, leading to lower bargaining power and downward pressure on pay. All these effects will be stronger during the Covid-19 recession since there will be a larger pool of people available to fill relatively low-skilled jobs.

NEW ZEALAND'S DEVELOPMENT OF 'FAIR PAY AGREEMENTS'

In considering how to create upward earnings pressure in low-paying sectors UK politicians should follow developments in New Zealand, where the Labour government is developing plans for sector-level bargaining. The New Zealand Labour party set out proposals in its 2017 election manifesto to develop fair pay agreements establishing minimum standards on pay and conditions – for example on redundancy, skills and training, and leave – that would apply to sectors or occupations. They would be negotiated by relevant employers and employees and would be binding once agreed.

A 2018 working group recommended that fair pay agreements should be triggered by workers or unions, either by demonstrating a specified level of representation in the sector or by showing that harmful labour market conditions met a public interest test. Employers and worker representatives should agree the scope of the sector or occupation included, and the agreement would cover all workers not just employees. Legislation would specify the minimum content of an agreement and firm-level collective agreements would need to equal or exceed the sector agreement's terms. Agreements would need to be ratified by a majority of both employers and workers covered.⁴⁶

To make matters worse, some of the areas of employment that displaced workers might move into are currently badly paid with poor conditions. For example, there will be growing need for social care and early years workers in the future, and caring skills are not easily replaced by automation. However social care and early years remain underpaid and undervalued as a result of the structure of both sectors, the overall level of funding and government policies. Unless that changes, it could mean growing numbers of people moving into unfairly paid, insecure jobs. This has particular implications for women who remain more likely to go into caring roles. Their employment prospects may be protected from automation, at the price of being locked into underpaid and undervalued work.

In the face of these pressures, the minimum wage and the national living wage have been very important policies. They have helped to reduce the gap in earnings between low and middle-paid jobs, while helping to increase the productivity of firms employing a high proportion of low-paid workers. But they do little to improve conditions within low-paid sectors or increase the pay of people on middle earnings. Going forward, more worker representation and collective pay bargaining will also be needed to create upward pressure on rewards. To tackle inequality driven by workplace technology changes, our labour market institutions need to change.

People that already have least could lose most

Most people from less advantaged demographic groups are positive about the role of new technologies at work. For example, in our 2019 survey we found that 50 per cent of workers in C2DE occupational classes who had seen new workplace technology introduced said it had had a positive impact on their role, while only 9 per cent said it had been negative (see page 64).

However, we are worried because people from disadvantaged groups are more likely to be in occupations with routine job tasks that are at significant risk of automation. This means they have a higher chance of needing to change occupations in the future and the possibility of unemployment; and they could face more competition for work, placing downward pressure on wages. The ONS's task-based analyses of the potential for automation in different occupations suggests that:

- **People with lower education levels are more at risk.** Of the 1.5 million people in England employed in jobs most vulnerable to automation, 99 per cent do not have higher education degrees.⁴⁷
- **Women are at greater risk.** Women do 70 per cent of the jobs at highest risk of automation because they tend to do more routine jobs.⁴⁸ The IMF's routine task intensity (RTI) index is also 13 per cent higher for women across their sample of 30 countries.⁴⁹
- **Both the youngest and the oldest workers are more at risk.** Those aged between 55 and 64 are more than twice

as likely to be in high-risk jobs than people in their 30s – and young workers aged 16 to 24 are more than eight times as likely.⁵⁰ Jobs that act as a gateway to the world of work for young people are set to become less numerous.

Similar analysis has not been published for other groups such as black and minority ethnic people or disabled people, but these groups are also at heightened risk because they too are over-represented in occupations with routine job tasks. In all of these cases, we face the exacerbation of existing labour market inequalities as a result of automation. These groups are also vulnerable to unemployment during the recession, because they are concentrated in occupations most affected by the Covid-19 lockdown. If 2020 job losses are followed by a faster pace of automation, vulnerable workers will be hit twice-over.

At the same time there is evidence that disadvantaged groups are likely to benefit less from the new jobs being created as a result of technology change. Anne Boden, the CEO of Starling Bank, told the commission that there needed to be concerted effort to “make technology something that is more attractive to girls and women” to deal with the considerable gender gap that still exists in the technology sector. PwC research indicates that only 5 per cent of leadership positions in the sector are held by women, and that only 27 per cent of female students would consider a career in technology, compared to 61 per cent of males. A career in technology would be the first choice of only 3 per cent of women.⁵¹



Places that already have least could lose most

The UK is the most regionally unequal of all G7 countries and, as things stand, the capacity for workers to share in the benefits of technology-driven growth is dependent on where they live.⁵² London and most of the south east have high levels of productivity but parts of the south west, Midlands and north of England, as well as Wales and Northern Ireland, have productivity similar to regions of southern and eastern Europe.⁵³

Cities often benefit from better transport infrastructure, larger, more diverse labour markets and agglomeration effects (where similar firms and workers benefit from being clustered together). The productivity of towns varies greatly, depending on their location and economic history. Many of the lowest productivity areas are rural and coastal, but there are also very productive countryside areas with diversified economies, like Cheshire and the rural south east.

Our least productive regions and communities have usually suffered from significant

post-industrial decline. The UK’s experience of industrial change has been far more painful than in many European countries because we have a highly centralised government that has failed to intervene to help industries and places adapt, and has often appeared to pursue a policy of ‘managed decline’.

Jobs that are vulnerable to automation in the future are overrepresented in many economically disadvantaged areas. In England the ONS found that workers in Boston in Lincolnshire undertake jobs with the highest probability of automation, while people in the London Borough of Wandsworth faced the lowest risk.⁵⁴ The 20 local authorities where people are at highest risk are all made up of towns and are mainly rural, coastal or ex-industrial communities. If technology change is mishandled in the coming years, automation could have a knock-on effect on these local economies, as well as on employees directly affected. Without intervention, technology change looks set to widen rather than reduce place-based inequalities.

Figure 6: Geographic inequalities in productivity are very high, whether looking between nations and regions or between local authorities

Nations and regions	Sub-region	Local authorities
Output per hour is 59% higher in London than Wales	Output per hour is 95% higher in Inner London West than Cornwall and the Isles of Scilly	Output per hour is 203% higher in the London Borough of Hounslow than Powys
Least productive areas: Wales, Yorkshire and The Humber, East Midlands, Northern Ireland	Least productive areas: Cornwall and Isles of Scilly, Southern Scotland, West Wales and The Valleys, Lincolnshire, South Yorkshire, Shropshire and Staffordshire, North Yorkshire, Devon, Dorset and Somerset, East Yorkshire and Northern Lincolnshire	Least productive areas: Powys, Wyre Forest, Richmondshire, Erewash, East Northamptonshire, Boston, Mansfield, Scarborough, East Ayrshire, Herefordshire

Source: Subregional productivity in the UK: February 2020, ONS, 2020. Note: Nominal GVA(B) per hour worked

TOP 20 ENGLISH LOCAL AUTHORITIES WHERE WORKERS ARE MOST VULNERABLE TO AUTOMATION:

Boston, Mansfield, Great Yarmouth, Harlow, South Holland, Newark and Sherwood, Castle Point, Doncaster, Tamworth, West Lancashire, Richmondshire, Ashfield, Nuneaton and Bedworth, Sedgemoor, Scarborough, North East Lincolnshire, Torridge, Fenland, Stoke-on-Trent, Preston

Source: *The probability of automation in England*, ONS, 2019

AI may entrench existing discrimination and disadvantage

Automating technologies create heightened risks for historically disadvantaged groups which means that efforts to stamp out workplace discrimination must be redoubled. Novel digital technologies risk creating new forms of bias and unfairness, to sit alongside those that are already entrenched, worsening inequalities in the world of work. In our work we identified the following issues of concern with respect to discrimination:

- Algorithms that use machine learning to inform recruitment decisions which learn to recognise patterns based on outdated and discriminatory data.⁵⁵
- Automated assessment tools with discriminatory impacts.⁵⁶
- Facial recognition technology in selection interviews, which critics say may be inaccurate and discriminatory.⁵⁷
- Intrusive tech-based monitoring and supervision which (in addition to souring workplace relationships) risks discriminating against employees who cannot comply with expectations because of age, disability, pregnancy or religious practice.⁵⁸

Algorithms and AI are being used to make life-changing decisions about recruitment and progression in the workplace, replicating the kinds of biases that plague human decision-making. Amazon was forced to abandon its AI recruitment software be-

cause it used past data to learn to reject women coders.⁵⁹ But similar commercial packages are being used more and more. These algorithms are told to exclude information about sex, race and other characteristics covered by equality laws, but we heard how they use supposedly unrelated data that are actually correlated such as where someone lives.⁶⁰

Anne Boden, chief executive of start-up app-based bank Starling, told commissioners: “Without due care there’s a risk that technology entrenches rather than corrects the kind of discrimination perpetuated by humans ... hidden biases are being written into the software that shape our lives such as the algorithms used to decide who gets what job interview, and who qualifies for a loan.”

And Zara Nanu, chief executive of tech firm Gapsquare, warned commissioners: “Machine learning and AI will accelerate inequality significantly... because machine learning in our uses historical data and we live in a world where our historical data is biased. So, any data we take from a company will show that you have your 50-year-old white male being a CEO and you will track his career progression, identify what background he came from and then the machine will take that as an example of a good leader and just accelerate that across sectors, and across industries.”

Meanwhile Unilever and Vodafone are among firms reported to be using facial recognition technology to compare interviewees’ physical responses with traits sup-

posedly linked to success at work.⁶¹ Critics say there is just too much variety in facial expressions, especially across cultures and among some disabled people, for these techniques to be accurate and non-discriminatory.⁶²

Without intervention, biased technology risks locking out disadvantaged groups

Technology-based monitoring and supervision is another source of concern (see chapter four). Excessive electronic supervision sours workplace relationships but it also risks discriminating against employees who cannot comply with one-size-fits-all expectations – for example, people with mobility-related disabilities, people who need to use toilet facilities more often because of age, disability or pregnancy, or people observing religious practice. And the risks are even greater in the gig economy, where workers are monitored by apps and rated by their customers, creating huge potential for unfair bias.

Without intervention, biased technology risks locking disadvantaged groups out of the changing labour market; ensuring that, in the near term, they face additional employment barriers through the Covid-19 recession and, in the longer term, they do not see the benefits of innovation.

CASE STUDY: MARY

Mary works in a call centre which uses monitoring technology to track how many calls workers complete, and how much time is spent completing each task. The technology records every break workers take and how long they are away from their computer and workers are closely monitored to ensure that they are taking the expected number of calls.

Mary is going through the menopause and because of this she needed to take more frequent and longer breaks to use the bathroom. She was granted additional break times due to her health needs. However, her company used their monitoring tools to track how much time Mary was spending and told her that her breaks were too long and too frequent. The firm initiated disciplinary action against Mary arguing she was taking too much time away from her desk.

The trade union Community supported Mary through a disciplinary investigation and successfully argued that the employer’s monitoring practices were discriminating against Mary. Mary’s union rep explained to her that menopausal symptoms have been accepted in an employment tribunal as a disability. Mary says: “What was happening to me was triple discrimination: I could have been facing disability, gender and age discrimination.”

Recommendations

In these extraordinary times, strong collective leadership is needed to achieve high employment, technology-driven productivity improvements, rising wages and a fair distribution of opportunities between people and places to reduce labour market inequality. The initial months of the Covid-19 crisis saw robust intervention to protect jobs and businesses. This activist approach must now be extended, but with a gradual shift from crisis support to measures that steer the direction of future growth, so that new technology works for all workers, with new partnerships, legislation and funding to support technology-driven growth and prosperity.

6. Adopt a new industrial strategy with renewed focus on high-employment industries and increased infrastructure investment (UK)

We need a new industrial strategy which focuses on high employment industries, and which can absorb the sectoral crisis plans we recommended in chapter one as a response to the Covid-automation 'double whammy'. This revised industrial strategy for the UK must focus on jobs, skills, technology and innovation, alongside increased investment in key infrastructure for a modern economy including digital infrastructure and essential enablers such as childcare.

In 2017 Theresa May's Conservative government launched the UK's first industrial strategy for many decades. But since Boris Johnson became prime minister it has been barely mentioned and the government has published almost no updates on implementation over the last year. There has also been very little progress in agreeing local industrial strategies or sector deals, which were intended to be the geographic and sectoral strands of the strategy.

A new industrial strategy is now reported to be in preparation. Briefings suggest it will be even more focused than its predecessor on pioneering science and technology (even though this was a major area of attention for the 2017 strategy).⁶³ We think this approach is too narrow and that more account needs to be taken of high-employment industries with relatively low productivity today. A post-Covid-19 revision to the industrial strategy should include a major focus on improving productivity and the quality of work across the whole economy, by supporting businesses in every sector and region to upskill workers and

adopt new ideas and technology while sustaining high employment.

The government, alongside sector stakeholders, should look to the progress already made in high-growth services sectors such as the creative industries to inform the development of industrial strategies for relatively low-productivity sectors like retail and hospitality. As the Industrial Strategy Council argued earlier this year, sector deals like that for the creative industries can provide a "template for successful service sector intervention".⁶⁴

A strategy only focused narrowly on advanced innovation would be disconnected from the short-term actions needed to support many different sectors to restructure and innovate following Covid-19. It would also do much less to reduce geographic inequalities (a government priority) than a plan prioritising high-employment, low pay sectors which employ lots of people in less prosper-

ous local labour markets. Our proposed crisis plans for each sector (recommendation 2) should therefore evolve into long-term sectoral industrial strategies, setting out decade-long plans for innovation, technology, skills and working practices for each sector.

The government also needs to continue to invest in R&D and green and digital infrastructure to support innovation, tech-enabled jobs and the zero-carbon transition. Whereas the previous economic era was made possible by the roads and the railways, the digital economy will require investment in research and development, and the spread of smart technologies, high-speed internet and other elements of digital infrastructure – alongside the social enablers of childcare and social care that will enable everyone to work. As Lesley Giles, former director of the Work Foundation, told us, putting this infrastructure in place will require a "partnership, collaborative approach on a number of fronts"

THE UK INDUSTRIAL STRATEGY

The UK industrial strategy was launched in a 2017 white paper. It consists of policies and initiatives covering:

- The 'five foundations' – horizontal strands relevant to the whole economy: ideas, people, infrastructure, business environment and places
- The grand challenges – four over-arching missions that will reshape and strengthen the economy – AI and data; clean growth; mobility; ageing society
- Sector deals – sector-specific partnerships, with commitments from government and industry
- Local industrial strategies – local plans developed by mayoral combined authorities or local enterprise partnerships

While very significant funding has been allocated to support R&D and infrastructure, most of the strategy's policy initiatives have little or no money attached to them, according to the Industrial Strategy Council, which questions whether they will materially affect economic performance.

Only limited progress has been made with respect to either local industrial strategies or sector deals. By February 2020, only seven out of 36 expected local industrial strategies had been published – for the West Midlands, Greater Manchester, West of England and the Oxford/Cambridge arc.

Sector deals had only been published for 11 sectors, despite the government saying it was open to negotiating a sector deal with any industry. These deals mainly focused on advanced innovation rather than productivity improvements in high-employment sectors. In 2019 the House of Commons business, energy and industrial strategy committee raised concern that high-employment sectors had not been able to develop deals: "We found that so far neither the retail nor hospitality sector has been able to make significant progress on securing a sector deal of their own, with the UK government seemingly focused on sectors in which R&D investment rather than policy changes can make an achievable difference."

between a national industrial strategy, local identification of infrastructure needs and collaboration between public and private sector.

7. Act to prevent higher earnings inequality during the recession and promote rising pay and productivity over time (UK)

We recommend a sequenced package of measures to ensure that inequality does not widen during this recession and that as the economy is recovering, pay rises for low and middle earners become a spur for better use of technology and higher productivity.

In a report about technology we need to talk about pay because, for too long, the UK has suffered from sluggish adoption of technology alongside low-paid, low-skilled work. Business, government and workers must collaborate to avoid a future characterised by low pay, low skills, low productivity and low investment in technology. With the supply of people wanting work likely to outstrip demand in the short term, we need to avoid sliding backwards on pay, particularly for the lowest paid workers, in the face of the twin challenges of the Covid-19 recession and the potential automation of many low-paid jobs.

We therefore propose a sequenced package of reforms to create labour market institutions that support pay rises for low and middle-income workers as productivity grows:

Extend pay transparency and promote firm-level commitments on earnings inequality: In 2018, the government legislated to mandate listed businesses with over 250 employees to report pay ratios between the company CEO and full-time equivalent employees at the 25th, 50th and 75th percentiles. This provision should in future apply to private companies or partnerships as well. It should also include a requirement to report data to a central portal (as with gender pay data). We are keen to imitate the approach taken to mandatory gender pay reporting, which on its introduction led to a 2 percentage point reduction in the gender pay gap among the employers covered.⁶⁵ During the recovery period large businesses should commit on a voluntary basis to stabilise or narrow the gap between low-, middle- and high-paid employees. This action could be mandatory for big businesses that receive government financial support during the coronavirus crisis or that benefit significantly from public procurement.

Continue raising the national living wage as the economy grows: Ministers should legislate for the national living wage to reach at least two-thirds of median earnings by the middle of the decade (enshrining current government policy into law). To date the NLW has been very effective at increasing low wages while having little impact on employment.⁶⁶ The government should take advice from the Low Pay Commission on how those increases should be phased as the economy grows.

The national living wage does not address the need to make sure the gains from productivity are shared with middle earners too

Increase collective bargaining: A long-term strategy is needed to increase the scope of collective bargaining. This will both create incentives for employers to adopt new technology and ensure workers can fully share in productivity improvements when they are achieved. Whilst the national living wage is important, it focuses only on low pay and does not address the need to make sure the gains from productivity are shared with middle earners too (before the Covid-19 crisis middle earnings were rising much slower than either high or low pay).⁶⁷

Widespread collective bargaining is a powerful mechanism for translating innovation-related increases in productivity into higher pay – not just for the lowest paid, but for those in the middle of the income distribution too. Where employers, employees and trade unions have a proper forum for consultation, wage negotiations and bargaining – including on technology and productivity improvements – it benefits the business and the industry as well as the workforce. Expanding the use of collective bargaining and a partnership approach could benefit sectors and occupations which have embraced technology and have skilled workforces but are still characterised by low pay and job insecurity, such as the creative industries.

UNIONS, BARGAINING AND PRODUCTIVITY

Evidence reviews conducted by the OECD, the International Labour Organization and the TUC show that unionisation is generally good for productivity. Some of the studies reviewed conclude that this is because exercising ‘voice’ through unions contributes to better management standards, high-performance work practices and greater innovation.⁶⁸

Studies using data on British workers and firms indicate that during the 1980s there was a negative association between unions and productivity. This relationship ceased to be statistically significant in the 1990s and union presence has subsequently become significantly positively associated with productivity.⁶⁹

As the economy recovers, employers and trade unions (as well as the CBI and TUC) should work together to extend collective bargaining and build a new framework for sharing prosperity. This is in employers’ interests as well as employees’, given evidence that unionisation is associated with improved productivity (see box). The government should also act by introducing a staged sequence of legal reforms to support collective bargaining. Key elements could include:

- Making union access and recognition easier to facilitate pay bargaining (eg permit electronic balloting, provide unions digital and on-site access to employees, liberalise statutory recognition procedures – see recommendation 31).
- Strengthening workplace information and consultation arrangements to require all large firms to establish consultation processes; and for the default list of issues covered by consultation arrangements to include pay, conditions and the introduction of technology (see recommendation 30 on increased workplace consultation).
- Introducing a framework to support occupational or sectoral bargaining on minimum employment standards in key areas, as New Zealand is currently devel-

oping. This should start with social care (see recommendation 8).

8. Increase the value, status and pay of care work and other essential low-paid jobs that are unlikely to be automated (England)

We recommend that the government sets out an active strategy to increase status, pay, job security and professional development for workers in social care, early years and other essential low-paid occupations that are less susceptible to automation and where new jobs are likely to be created.

Caring skills are less vulnerable to automation, but they are also often undervalued and underpaid. This is true for workers in social care and in childcare, who have median hourly pay of £9.98 and £9.94 respectively – compared to an average of £13.68 for all jobs.⁷⁰ In both sectors, low pay is accompanied by workforce instability. In the early years sector in England, one in six workers leave their job within a year – and in adult social care, it is almost one in three workers (31 per cent).⁷¹ The Covid-19 crisis has demonstrated how much society relies on these and other low-paid key workers, such as nursing assistants and teaching assistants, and these jobs will continue to be important despite accelerating automation.

As technology changes, we want to prevent further polarisation of the labour market between those with high levels of academic qualifications (in increasingly higher paid cognitive work) and those with low levels of qualifications (in caring or other non-routine service work). The government should therefore set out a plan to increase the status of and rewards for workers in these key low-paid occupations, starting with expanding sectors like social care and early years.

The fragmentation as well as the underfunding of the care sector makes it harder to establish negotiated pay agreements and, even where they exist, makes it harder for them to have a substantial impact on pay and conditions right across the sector. The inadequate nature of social care funding means that even though demand for care jobs in future is likely to continue to grow, the workforce is unlikely to see any benefits. So we recommend that in England the government should bring together employers, trade unions and local authorities to establish a proper sectoral framework for negotiating increases in pay

and conditions right across the social care sector. This sectoral pay framework would need to be accompanied by additional funding, requirements on employers and a long-term financial model to deliver social care with fair pay rewards. Such a framework should subsequently be used as a model to deliver improvements in pay for other low-paid sectors and occupations where jobs will be relatively unaffected by automation.

9. Combine employer support for innovation, business development and skills to drive up productivity, technology adoption and support for the workforce (UK)

We recommend that services supporting employers on adopting innovation, business development and skills are expanded and coordinated more effectively, to help businesses boost productivity by investing in people and technology together. Businesses need access to advice, finance and technology that helps them to innovate and grow – whichever public agency they come into contact with first. Following the Covid-19 crisis that assistance should also now be combined with support on employment and skills, to help businesses upgrade the skills of new recruits and their existing workforce so they can work well with new technology. At present almost no support is available to employers on skills, except in the context of apprenticeships (see chapter three for our proposals for skills and employment support).

With respect to business development and innovation, stronger collaboration is needed between existing bodies at national level; and the capabilities of regional or sub-regional agencies need to be advanced. In England, local growth hubs (local public/private sector partnerships within local enterprise partnerships (LEPs)) should take the lead; in the devolved nations, responsibility lies with Scotland CAN DO, Business Wales and Invest Northern Ireland respectively. National organisations, such as Innovate UK, should support these agencies to promote the permeation of technologies and new ideas across the whole business community, while also retaining national responsibility for supporting totally novel innovation by R&D-intensive businesses.

Secure funding for this work should be available for at least five years, with new resources coming partly from the UK govern-

ment's planned increase in R&D funding and partly from the shared prosperity fund (the proposed replacement for EU structural funds). Funding allocations across the country should be broadly proportionate to the footprint of business activity, while providing extra support for economically disadvantaged areas.

The government should also review the support available where new technology is likely to lead to job losses, building on the lessons from Covid-19 redundancies. For example more support could be made available on a permanent basis to advise employers on effective consultation with the workforce to avoid job losses, as well as early intervention and support to help people find new jobs (learning from the DWP's rapid response service which supported employers making redundancies during the 2008 financial crisis).

10. Empower local leaders to help more businesses use new technology and create good jobs (England)

We recommend that significant economic power and funding is devolved to towns and cities within England. Local economies are being affected in very different ways by technology change and the recession will also have an uneven impact. Local leaders are best placed to deliver policy interventions lined up to the situation on the ground, but devolution to date has favoured metropolitan areas over counties – and has sometimes felt like an agenda for the cities at the heart of city-regions, at the expense of outlying towns. Devolution also needs to be supported by a significant shift in transport and regional investment to tackle regional inequalities and boost growth across the country.

Options for greater devolution include:

- Devolving power to communities across England – including both towns and cities. The forthcoming devolution white paper should provide a framework that enables devolution to all types of places by ensuring that: mayor-led combined authorities have adequate representative structures and policy focus on the towns within their territories; and full devolution is on offer to non-metropolitan areas without a major city. Consideration should also be given to devolving more powers to individual districts, boroughs and towns within larger areas.

- Devolving extra power and responsibility: adult education budgets (where this hasn't happened under individual devolution deals); employment support (so that a spine of core employment services are determined nationally and additional support is devolved, to be determined locally so it can be integrated with other local employment and training services); economic development powers where there is demand, notably transport, housing and innovation (see also recommendation 9 on business and innovation support).
- Increasing the proposed 'shared prosperity fund' (which replaces EU funding) significantly and devolving it to local leaders; and also starting work to develop a fair system of local taxation, spending and redistribution between places.
- Reforming local enterprise partnerships so they are always fully accountable to local elected leaders (see also recommendation 28 on social partnership).
- Creating pan-regional tiers with responsibility for linking and coordinating the economies and labour markets of towns and cities, building on existing bodies like Transport for the North.
- Appointing representatives from nations and regions to key UK economic organisations, such as the Industrial Strategy Council or Research Councils, to make them more responsive to different local economies, and to integrate national programmes with local schemes.

11. Transform towns with plans for jobs, training and investment (England)

We recommend that the government provides special support to enable disadvantaged towns to adapt to new workplace technology. Many ex-industrial towns and coastal communities struggle today in part because they were not adequately supported to adapt to previous upheavals in industry and technology. A new wave of technology change was already posing a major threat to poorer settlements with limited connections to their wider region and now Covid-19 and social distancing will hit some of these places hardest – especially those with high concentrations of general manufacturing or hospitality jobs.

Disadvantaged places outside major cities are often reliant on a small number of industries or employers and lack the economic resilience to weather change and disruption. However, the evidence also suggests that such places can grow and reinvent themselves if they are enabled to do so – towns can expand and diversify their economies.

The government's current policy of town deals is inadequate: it targets only 101 of 541 towns with above-median income deprivation; the towns participating were selected on an opaque basis, potentially on party political grounds; and it is designed around a small additional pot of capital funding rather than considering all the resources available to each town.⁷²

We propose a three-pronged approach to cover all but the most affluent towns:

- **Jobs Plans.** Each town or cluster of smaller communities needs its own industrial strategy which sets out a local direction for supporting jobs, developing economic assets and advantages, and preparing for longer-term change to work and technology. These plans need to be integrated both with those of their neighbours, and with larger territories like counties, combined authorities and regional tiers.
- **Training and skills funding.** Towns' industrial strategies should inform skills provision and related transport planning within the wider area, and FE funding (both revenue and capital) should be designated to ensure people living in disadvantaged towns have access to the facilities and services that provide the required training.
- **Investment Plans.** Each town or cluster of smaller communities should be able to see a comprehensive investment pipeline for their area, drawn from the spending plans of all agencies, tiers of government and regulated utilities. These plans should provide for disadvantaged towns to have early access to full fibre broadband to support local business and home-based working. They should also include plans for transport connections, energy projects, high street regeneration and public service buildings. Presenting the overall footprint of planned public

investments will support coordination and prioritisation.

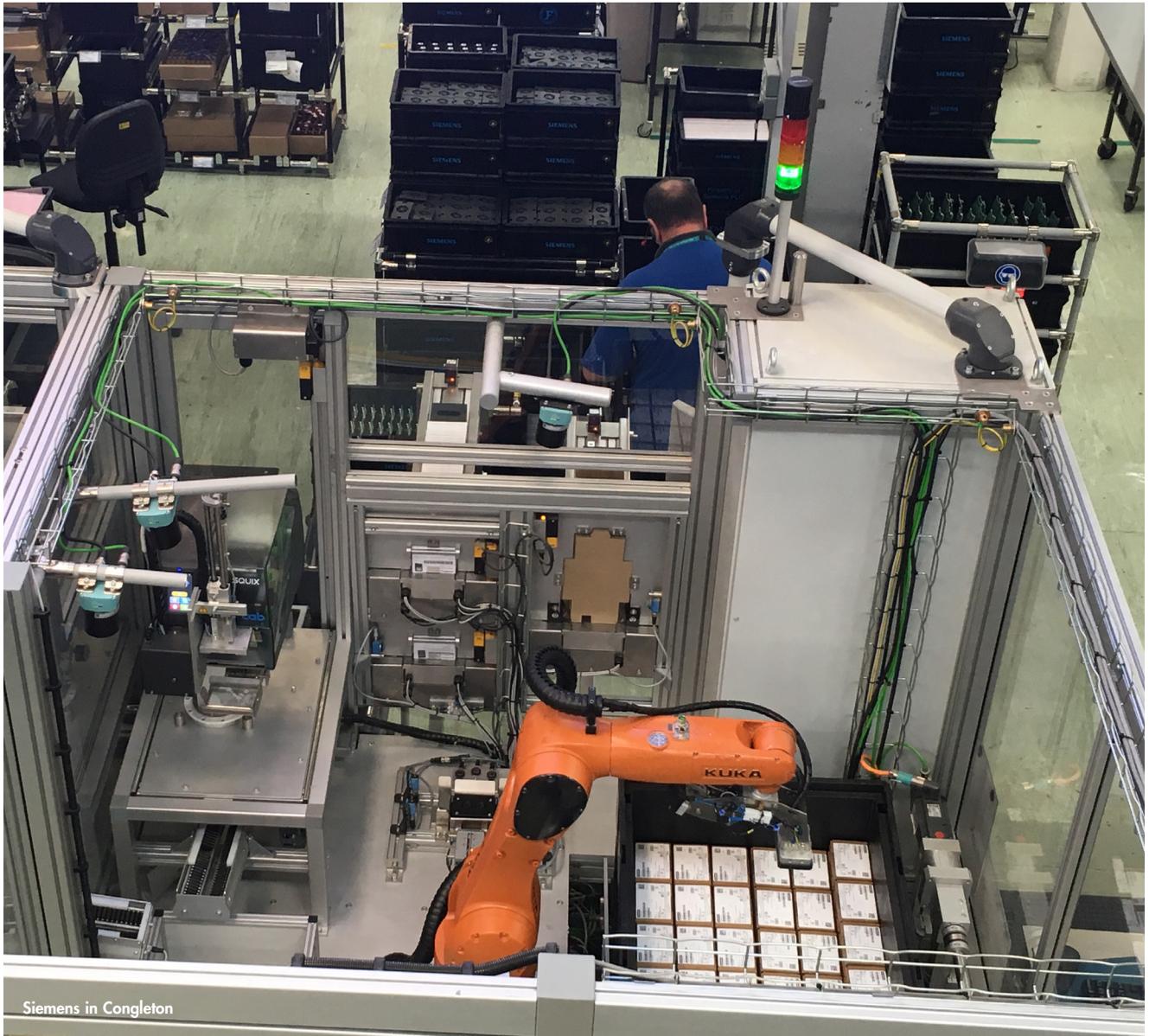
This recommendation would mean that a town like Boston, Lincolnshire (which sits within a labour market at very high risk from automation) would have a jobs plan and an investment plan to harness technology change, aligned to the county's existing economic development plans. The plans would build on the town's strengths – for example its water, road and rail connections – and its major specialism in agri-foods. Funding for training and infrastructure would be visibly earmarked and linked to the plans' priorities, and spatial planning policies could also be amended if changes in land use are needed to support new, higher-productivity jobs.

Each town needs its own industrial strategy which sets out a local directions for supporting jobs and preparing for longer-term change

12. Establish a review of equality law and automation (Great Britain)

We recommend that the UK government establishes a review of how equality law is working in the age of automation, led jointly by the Equality and Human Rights Commission and Information Commissioner's Office to clamp down on technology-powered discrimination before it emerges as a serious issue. The review's terms of reference could cover areas such as:

- Building a broader evidence base on technology-enabled discrimination.
- Examining whether the provisions of the Equality Act 2010 adequately protect against indirect discrimination resulting from algorithmic decision-making.
- Considering how best to ensure transparency with respect to the use of technology in making workplace decisions which could have discriminatory impacts.



Siemens in Congleton

The review should lead at the very least to new guidance and codes of practice. But there may also be a case for mandating transparency and proactive reporting with respect to automated processes in employment decisions. For example, employers could be required to report when such tools are introduced and regularly carry out assessments of their equality impacts (see also recommendation 25 on consulting on tougher data protection legislation).

Additionally, a review would need to address the resource implications for

Trade unions and employers should place potential equality impacts of new workplace technology at the centre of their agreements

effective support and enforcement, establishing whether regulators require additional funding and/or powers to have the capacity to investigate new potential instances of

discrimination driven by technology. The review would also need to determine the extent to which regulator staff currently have the required specialist skills and technical expertise to monitor equalities impacts in this constantly evolving landscape.

Immediately, and regardless of the outcome of a government review, trade unions and employers should place potential equality impacts of new workplace technologies at the centre of their negotiations and agreements when new technology is being introduced. ■

CASE STUDY: ASDA DISTRIBUTION CENTRE, NORMANTON

In November 2018, we visited Asda's distribution centre in Normanton, West Yorkshire. The depot had recently introduced 47 new low-level order pickers (LLOPs): vehicles, operated by warehouse workers, used for travelling through the warehouse to pick goods for delivery. We were also told about the use of a barcode-based digitised audit trail system that can trace goods when items go missing.

Retaining jobs, sharing the rewards. Managers and union representatives told us that there were no fewer jobs as a result of the introduction of the LLOPs. A worker later told us that because the company is more profitable as a result of the technology it has led to more, not less, staff being employed at the site: "They're getting more out of an individual but because of the productivity and as the business is moving forward, we're increasing." Another worker in the centre reflected that employees have seen pro-

ductivity increases translated into higher pay and improved conditions. This process has made the work easier as employees no longer have to get on and off the trucks "but they've done it in a way that we're still doing it safely and we've been rewarded with better pay and conditions".

Supporting better work. Employees at the centre told us that new technology has improved their day-to-day experience of work. First, the LLOPs have made their core job task – picking goods – less physically demanding. As one worker said: "it makes the job easier for you and you wouldn't walk that much, jumping on and off the lorry." Second, the LLOPs come with enhanced safety features. When a warehouse aisle is busy and there are objects or other people within a certain distance of a LLOP's sensors the vehicle will not move. Third, the digitised audit trail system has helped both employees and managers identify problems more easily and avoid mistaken suggestions of wrongdoing.

Hearing workers' voices. The distribution centre has established procedures

which enable frontline workers to initiate change within the workplace. One manager told us that, through the site's 'circles of improvement', warehouse operators have suggested changes that have prevented damage to equipment and saved money:

"...a vehicle driver came to me and said, 'The problem you've got is, every time I drive over that gap, I keep damaging the wheel on this truck'. And then we just looked at it and went, 'hang on a minute, he's probably got a point here.' So we've had surveys of all the joints in all the warehouse. We invested £10,000, and our damage on the machines has actually come down. That came from a colleague on the shop floor, and we've invested probably £1m this year in this depot to make improvements".

The constructive union-employer relationship at the site is valued by managers, as well as workers. A manager told us that "the stronger the relationship we have with the union, the better we've become and we make far quicker decisions in enhancing our depot".



Commissioners visiting an Asda warehouse in Normanton

Chapter three:

The support to adapt

WE WANT TO see a workforce that has the skills and training to use new technologies well and to take up good jobs in new industries. New technologies will continue to change the nature of jobs, and people must have the support to adapt and reskill throughout their careers. They should be able to move seamlessly in and out of training as technology advances, and as they progress through their working lives.

Covid-19 is likely to accelerate the process of change if, as seems likely, new patterns of work and consumption and a deep recession drive investment in new technology, quicken the pace of sectoral restructuring and trigger high unemployment. Workers facing displacement related to the pandemic may not be able to return to the same kinds of jobs as before, even as we start to recover from recession.

This chapter focuses on those who face the risk of either job loss or dramatic change to their jobs as a result of new technologies, and who therefore require new skills and the support to obtain them. Targeted learning across the life course is necessary to ensure they are not left behind.

Four out of five people who will be workers in 2030 are already in the workforce today, so our focus has been on the support and training adults should

receive.⁷³ The commission has not examined reforms to education and support for children and young people in schools or post-16 education.

Reasons to be optimistic: The Covid-19 crisis and the acceleration of technology will demand substantial improvements to the adult skills and education system. The UK has the capacity and expertise to respond and to create a radically better system to help workers keep pace with changing technology and jobs. Already, some employers are providing high-quality training, many employees are showing they have an appetite to retrain and acquire new skills, and the government is seeking to improve the support it offers, including by working with the CBI and TUC.

Reasons to be worried: The current adult skills system is failing and requires a complete overhaul in order to respond to the scale of the challenge. For many years, UK employers have not offered enough training for existing staff, and have done even less for new recruits. Where good practices do exist in workplaces, we've found that they are the exception and not the rule; and where opportunities to retrain or reskill are currently available, they are often not accessible to the people who need them most.

Our findings

This is a dangerous moment for millions of workers facing painful transitions, but it can also be a catalyst for change. We need to completely reset the way the UK delivers training and employment support throughout people's working lives. Given the combined challenges of the Covid-19 recession and technology change at work, people need urgent and active support to flourish in new roles and occupations that will often require very different skills.

The skills and training system is not fit for the challenges we face and needs a major overhaul

England's adult skills system has been failing for a long time despite many well-intentioned public policy initiatives. Parts of the system such as vocational training have never worked well enough. Others have been particularly disrupted by the last ten years. The problems have deep roots with challenges for government, employers, trade unions and workers.

During the course of the commission, we heard from employers who emphasised how important new skills are for expansion in their businesses; they stressed how rare some of those skills are, and executives from Airbus and Siemens told us they were in competition for the same in-

demand skills required for growth across high-tech sectors.

Both the OECD and the UK Industrial Strategy Council have warned that our skills system needs to improve. OECD data shows that compared to other countries, England has a high proportion of adults without basic literacy and numeracy skills. The labour market is polarised with a high number of low-skilled jobs and low-skilled workers, and few intermediate jobs. We have skills shortages in education, health-care, science and technology, and in quantitative skills, problem-solving and interpersonal skills. The OECD also found that 40 per cent of workers are employed in an occupation for which they do not have a relevant qualification, and 28 per cent are underqualified for the occupation they are in.⁷⁴

Little is done to remedy these problems: participation in workplace training is low compared to other countries, a situation that has remained the case for many years. In 2015 only 30 per cent of employees in the UK received employer-provided training compared to 41 per cent across the EU.⁷⁵ And participation in the UK de-

clined in the decade from 2005, while across the EU it substantially increased. This gap is not made up through public provision. The UK spends less on adult learning than other European G7 countries or even the USA.⁷⁶ Between 2012/13 and 2018/19 participation in public sector FE learning in England fell by 39 per cent.⁷⁷

Without action things will get worse. The Industrial Strategy Council estimates that, by 2030, 7 million extra workers will have insufficient skills for the jobs they are likely to hold. The council's modelling suggests that the single largest problem will be a lack of basic digital skills, followed by management skills, STEM and teaching skills. Their analysis shows that existing policies will not be sufficient to address the problem; and nor will formal learning outside the workplace: the only solution is a huge increase in employment-based learning. Increasing the provision of adult training matters for the council's remit to boost productivity because higher productivity is associated with higher skill levels: differences in skills are thought to explain two-thirds of the gap in productivity between London and the rest of the UK.⁷⁸

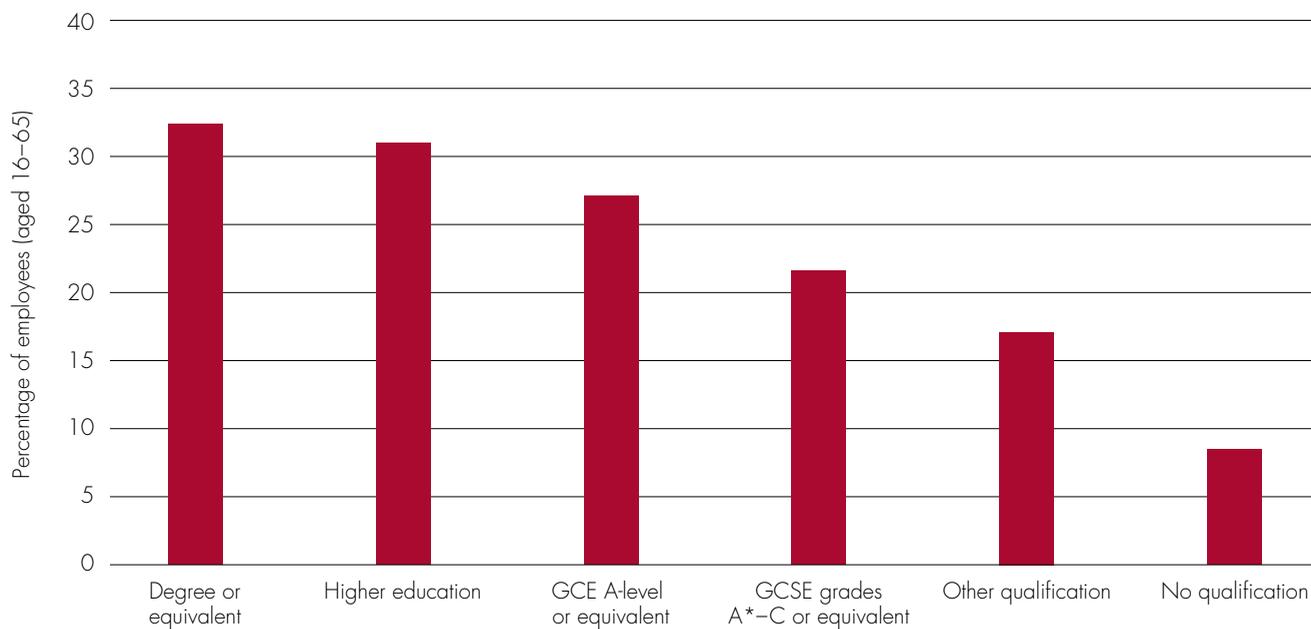
People that need most help receive least

We know that people from more disadvantaged places and demographic groups are at greater risk of their job changing or disappearing due to technology change (see chapter two). This inequality of risk is concerning in itself. But what makes things even worse is that the workers who need support the most are the least likely to receive it.

Joe Dromey, then a senior research fellow at IPPR, told the commission: "...lower-skilled workers are less likely to be participating in education and training than higher-skilled workers. And perversely (I'd argue) employers are less likely to invest in the training of their lower-skilled workers compared to their higher-skilled workers. The deck is stacked against low-skilled workers: they're more vulnerable, they're less likely to retrain, and if they are displaced from the labour market they're more likely to slip into long-term unemployment and inactivity."

ONS figures show that employees with a degree or equivalent higher qualification are almost four times as likely to have recently received training at work as employ-

Figure 7: People with lower qualifications are the least likely to participate in job-related education or training



Source: Characteristics and benefits of training at work. ONS, 2019. Note: Percentage of employees (aged 16-65) participating in job-related education or training in the last three months by highest qualification, 2017

ees with no qualification at all (figure 7).⁷⁹ Our own 2019 survey reinforced the point: of those respondents educated up to GCSE level, only 31 per cent said that their employer currently offered training to help them prepare for future changes to their role as a result of new technology. This compares with 48 per cent of those educated up to A level and 51 per cent of those educated up to first degree level (see page 64).

It is the same story when it comes to the occupations where people receive the least training. Occupations where fewer than 15 per cent of the workforce received training in the last three months include low-skilled jobs in: cleaning, administration, sales, manufacturing and warehouses, and textile and garment manufacturing.⁸⁰

Too many local economies are stuck with weak demand and supply in skills

There is a strong spatial dimension to the UK's skills challenges. Labour markets are inherently local, and people's access to work and training is determined in large part by where they live. Many places simply do not generate enough high-skilled

jobs or provide sufficient education to help people achieve good skills.

Too many communities are trapped in a 'low skills equilibrium' with low demand for skills and low supply in skills. This describes a situation when a local labour market has few skilled jobs, low investment in training and outward migration of people with good qualifications. New and existing businesses tend to gear themselves towards low skill, low productivity, low pay business models, which in turn reinforces underinvestment in training and outward migration.⁸¹

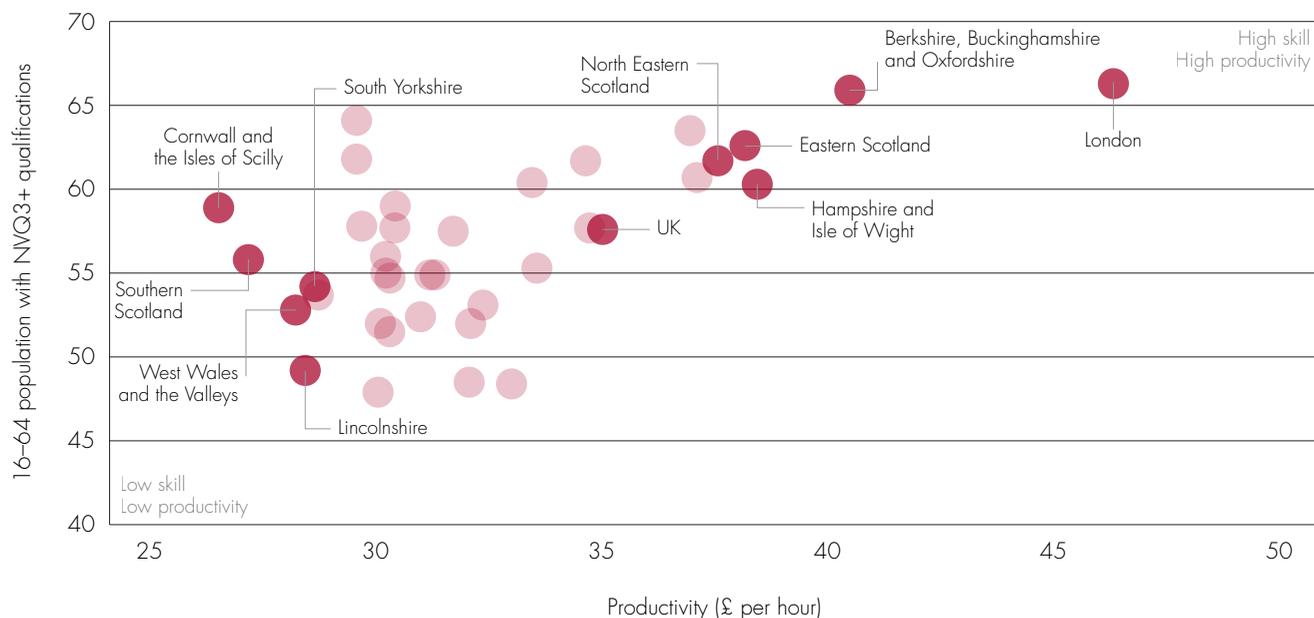
Some towns and cities have been struggling to break free from this equilibrium ever since the rapid deindustrialisation of the 1980s. The current situation is summarised in figure 8 below, which shows that places with poorly qualified residents also have low productivity workplaces. To move on places require sustained intervention that raises both the supply of skills (ie well-qualified employees) and the demand for skills (ie the jobs employers create) as part of a comprehensive industrial strategy tailored to that places' assets and advantages.⁸²

Government is badly underfunding adult skills

There has been a steep decline in government funding for adult skills provision. The Institute for Fiscal Studies found that total spending on adult education and apprenticeships fell by 37 per cent in real terms between 2009–10 and 2018–19. Non-apprenticeship adult education budgets declined by almost 50 per cent after 2009–10, and by almost two-thirds since the start of the century (in real terms).⁸³ Decades of good intentions have failed to solve: the shortage of key skills at the highest qualification levels; the wide gap in vocational skills in the middle; or the persistent lack of basic skills among too many people with the lowest level of qualifications.

The government's apprenticeship levy has also been a source of controversy since its introduction in 2017. While welcomed as a sincere effort to fund higher numbers of apprenticeships, it has received criticism from employers, worker representatives and labour market experts – and the number of apprentice starts fell by 170,000 following its introduction.⁸⁴ While firms see it as bur-

Figure 8: Many places are trapped in a negative equilibrium of low skills and low productivity



Source: Annual Population Survey 2019-20 ONS, 2020; Subregional productivity in the UK: February 2020. ONS, 2020

densome, many outsiders have criticised its poorly focused spending. Some have identified that there is excessive 'dead weight' in the system, with levy funds used by some employers to pay for advanced qualifications for already highly-skilled employees that they would have otherwise funded without the subsidy – at the expense of those without lower-level qualifications.⁸⁵

The government has recently started to place much greater emphasis on adult skills and further education. The establishment of the National Retraining Scheme in 2017, involving the government, CBI and trade unions, was a positive step and was a welcome example of social partnership. However the scheme only conducted pilots and research before being closed and rolled into the National Skills Fund in Autumn 2020. Most of its budget went unspent.

The partnership approach was dealt another huge blow by the government's recent announcement that it plans to end funding for the Union Learning Fund. In 2019/20 this programme helped 200,000 predominantly low-skilled workers to access learning, education and training courses through their union and through their workplace, and it promotes learning and skills partnerships between employers and unions in individual workplaces.⁸⁶

Earlier this year ministers launched the National Skills Fund, worth £2.5bn in England over 5 years, with £325m available in 2021/22. The 2019 Conservative manifesto said the fund would be used to "provide matching funding for individuals and SMEs for high-quality education and training" and in October 2020 the prime minister announced it would fund a 'lifetime skills guarantee' offering a free level 3 qualification to all adults without one.⁸⁷ In 2021/22 it is also being used to test employment-focused short course 'boot camps', expand higher technical courses in FE and pay for skills provision for the unemployed.⁸⁸

The 2020 Budget also pledged £1.8bn of investment in the further education estate and following the Covid-19 lockdown the government published its Plan for Jobs in July. This was a package of emergency support which included £3.1bn of spending to support unemployed people. However, the money for skills (as opposed to Jobcentre Plus) was all allocated from within the National Skills Fund rather than being new.⁸⁹

While the commitments to increase overall funding show movement in the right

WORKPLACE (RE)TRAINING: EXAMPLES FROM OUR RESEARCH

Airbus university

Katherine Bennett, senior vice president at Airbus, told us about Airbus's leadership university in her evidence to the commission. The leadership university offers skills development to the company's employees, with approximately 30,000 employees at sites around the world participating in courses, conferences, and development programmes each year. The firm emphasises internal mobility and told us that around 12,000 workers change jobs within Airbus annually.

Asda depot training

At the Asda distribution centre visited by the commission, workers told us about the provision of training to use new low-level order picker (LLOP) machinery. New starters get a full introduction to using the new technology. After a certain length of service longstanding employees are able to take part in 'refresher' training to learn skills required for different roles.

Upward learning' at Siemens

At Siemens Congleton we heard from a higher degree apprentice in the IT department who had been given responsibility for digital upskilling. As she told us: "We have an ageing workforce on the shop floor and it's my goal and my vision that these shop floor operators can comfortably use a computer ... I want them to feel comfortable and competent using a PC to help us to get better - and help us to get less tickets in IT!"

Zurich's 'Head Start' fund

For a number of years, Zurich Insurance has offered a 'head start' retraining fund worth £500 to employees who are made redundant. Take-up of the fund had been low historically, but has recently increased following efforts from Community union to package together head start funding with free courses supported by the Union Learning Fund.

direction, the National Skills Fund will only reverse around a fifth of the cuts made to adult education and apprenticeships spending since 2010.⁹⁰ The amount of money on offer is insufficient to fund significant take-up of the new entitlements the prime minister has promised. And the proposed ending of the Union Learning Fund and the scrapping of the National Retraining Scheme show there are still serious gaps in the government's approach to funding and delivering on adult skills.

Employers don't provide enough training and good practice appears to be the exception not the rule

In our visits to workplaces and evidence from employers, we found excellent examples of good practice when it comes to provision of learning for employees – both in job-specific training and in general, portable skills. Firms like Airbus, Asda and Siemens are taking important steps to ensure that their workers are equipped with the skills they need to fill shifting job roles. Promising initiatives include dedicated

funds for retraining; wide-ranging career development programmes; and formalised colleague-to-colleague learning (see box).

But we are concerned by the gulf between the good practice at some of the firms highlighted in this report and the provision of training by businesses in general. As a result, individuals with an appetite to retrain have too often found that the opportunities to do so are simply not available to them. Our survey results reiterate that, while the vast majority of workers surveyed felt confident that they would be able to change and update their current skills if new technologies affected their job, only 27 per cent of them agreed that their employer was taking action to prepare them for change (see page 64).

Overall, across the economy, there is just not enough workplace training, with employer spending on vocational training courses around half the EU average.⁹¹ Data from the OECD's PIAAC survey also shows there is a lower rate of participation in job-related training amongst adults working for SMEs, compared with employees in

CASE STUDY: TOM

Tom has worked in financial services for almost 20 years. In 2019 he moved from a customer facing claims role into a role as an automation developer.

Tom says he received excellent advice through coaching, to focus on his strengths, rather than his weaknesses. This changed Tom's mindset with respect to career development, and he turned his focus to his technical and analytical skills. He started looking for opportunities and roles which would allow him to use these skills. He explains that the driving force behind his decision was reviewing how his brain works, what he was passionate about, and what he enjoyed. But once he was in the new role, he reflected that he was futureproofing himself by acquiring a sought-after skillset. Tom says: "I know that technology might take over some aspects of the claims role, but I wasn't fearing that my job would be gone [when I decided to change role]. Instead I knew that I was excited by technology and wanted to be part of it."

Tom moved from an area that he knew "like the back of my hand" to learning something different from scratch. He began with two weeks of intensive training on the fundamentals of the system he would be using, and then moved into virtual on-the-job learning with lots of support from the team around him. Tom explains that he ended up automating a process he had previously worked on: "Funnily enough, my first build was my idea. I had thought of the process when working in claims, and when I came into the robotics team I built it."

larger firms.⁹² Looking forward, in the context of Covid-19, there is also a significant risk that employers struggling to stay afloat will be more reluctant to invest in training over the next few years as they seek to cut short-term costs.

People want to train for work. But they need to see the point of training and often they don't

The commission's surveys tells us that, where employees are offered training, the overwhelming majority want to participate – with nine in 10 workers saying they are likely to take part in training to help them prepare for future changes to their role due to new technology. However, many are not offered training and the benefits for seeking individual training are often not clear.

When asked whether they agreed or disagreed with the statement 'I am worried about my current job no longer being needed because of new technology', participants in the commission's focus groups tended to be ambivalent and unsure. There was a sense from people in occupations and industries at high risk of job automation that it was impossible to predict the future and it did not make sense to take steps to prepare for change – as one participant put it: "You don't know what the future holds."

Whilst many trade unions representing workers in retail, hospitality, manufacturing and administrative services have been talking about the potential impact of technolo-

gy on jobs and the need to increase training and skills for a long time, in many workplaces within these sectors there are still very low levels of union membership or union recognition so workers do not receive advice, support or representation from a union to promote training. According to our 2018 survey, even in workplaces where trade unions are present only 16 per cent of employees said unions were helping ensure that new technologies enhanced and improved working life.

Workers often do not have the time or the money to participate in learning opportunities

As the OECD notes, educating working-age people means addressing the opportunity cost: the loss of pay while learning.⁹³ Ultimately, learning becomes inaccessible when the only option is learning unpaid, outside working hours. Countries such as France, Belgium and Austria provide for varying levels of income compensation for adults while they undertake training, while in Sweden and Finland adult learners can access general student finance provision.⁹⁴

Andrew Scott, professor of economics at London Business School, warned us that "when [people] are time scarce or money scarce", they find it difficult to prioritise adult learning. This was confirmed to the commission through its focus groups. As one worker told us in Leicester: "I think it's all about a time factor as well. I mean, I do other things as well, I'm older, I've

got grandchildren, we look after my mum at home, you know, and I like my home time as well. I don't get enough home time, there's always things to be doing." And a part-time retail worker in Doncaster told the commission that she "work[s] part-time for a reason".

Jobcentre Plus is not equipped to deal with retraining or with high levels of unemployment

Jobcentre Plus has not had to support mass unemployment for a very long time. The service's main focus in recent years has been supporting people who have not been working even at a time of full employment. People facing prolonged worklessness in these circumstances mainly have significant personal barriers to finding work, such as those with very poor basic skills, serious physical or mental disabilities, people suffering from drugs or alcohol addiction, ex-offenders, and homeless people. Jobcentre Plus has therefore not needed to provide significant support or advice on retraining for adults with more than basic skills.

DWP services will now need to reorient towards serving a far larger number of people, with a very different profile: just in the five months between March and August 2020 the number of people on benefits that require them to seek work increased from 1.2 million to 2.7 million.⁹⁵ It is also likely that many of the newly unemployed in the months ahead will have spent the best part of a year on furlough – which, in the absence of widespread training or participation in voluntary activities, may have eroded their skills and confidence in the world of work.

In chapter one we described how the DWP will have to scale up capacity very quickly, including recruiting tens of thousands of capable new staff, where the Chancellor's recent spending increase is welcome but unlikely to be sufficient. But Jobcentre Plus will also need to change the kinds of work that it does, and the kind of support it offers not just during the height of the Covid recession but beyond, as more people have to move jobs or sectors and retrain because of changing technology.

Recommendations

Before Covid-19, technology was already changing the world of work in ways that demanded a big shift in the UK's ap-

proach to adult training and skills. Now the unique nature of this recession is accelerating that change – with many jobs disappearing overnight and unlikely to ever return as they were.

In the short term, the priority is to help people who have lost their jobs or are at risk of becoming unemployed in the months ahead. In chapter one we set out how support for unemployed people needs to be reshaped immediately in response to the Covid-19 recession and the prospect of mass unemployment. We proposed doing that with a major short-term increase in training and education support (recommendation 5); and a ‘work and training’ guarantee during the recession for the unemployed (recommendation 4).

But we also need to make enduring and long-overdue changes to employment support and adult training, with a permanent, universal offer where both employers and government take greater responsibility for

skills. We must act to provide workers the support to adapt whenever their jobs change or disappear as a result of new technology. Our proposed emergency measures should serve as the foundations for a new adult training system. Here we set out our thinking, including further policy recommendations to ensure that people are given the support to train beyond the Covid-19 recession and throughout their working lives.

13. Create an integrated adult skills system with a training offer for everyone (England)

Fundamental change is needed to meet our skills needs. We want to see the creation of an integrated adult skills system, operating on a scale never seen before in this country, working as a partnership between government, employers and people.

Our vision is of a system which can be accessed in many different ways – via employers, job centres, providers and trade unions – so there is no wrong door and no one is left out.

There would be multiple training offers geared to the particular needs of each individual and employer, ranging from regular, structured learning for everyone to intensive support for people upgrading their skills or changing occupation.

The spine of the new system should be a new digital skills service with individual portals providing personalised guidance, a record of achievement and access to all learning opportunities; as well as specialist support for employers to plan their skills needs and navigate the support available.

The aim is a substantial and enduring change in behaviour and culture embracing employers, employees, jobseekers and the self-employed. Achieving this is likely to require a sizeable increase in funding from government and employers over time, and also new duties and expectations for employers. New resources are needed to expand the provision of training but

Figure 9: Proposed elements for a new integrated skills system in England

No wrong door, no one left out	National digital service for all	Substantive training offers	
Jobcentre Plus Employers Learning providers Local/regional government Gov.uk Trade unions	Careers advice and guidance Bite-sized digital learning Record of achievement Programme information & application Funding information	Jobcentre Plus ‘work and train’ programmes	Training available to all social security recipients out of work; training on offer as part of paid ‘work guarantee’ jobs
		Structured on-the-job training programmes for all employees	Paid by employers, part of normal work (with new support for employers & a duty to plan training)
		Apprenticeships (level 2 to 6+, new recruits of all ages & existing employees)	Tuition paid by expanded apprenticeship levy (with possible government top-up), employer provides 1 day a week paid time to train for minimum 12 months
		FE college-based courses (level 1 to 6+)	Government pays tuition for first level 2 or 3 & many other priority courses; statutory training pay available for temporary reduction in hours; social security available in many circumstances
		Sector-led training and accreditation for mastery & career progression (levels 2 to 6+)	Sectors develop funding arrangements & expectations (eg possible sector levies); employer pays tuition & on-the-job training when core to existing job; statutory training leave & pay available for career advancement; routes for self-employed to participate
		HE courses geared to career change (1–2 years)	Bursaries for skills shortage occupations; employer can offer time-off to train with statutory training pay; social security available in some circumstances; parts of courses could be paid graduate apprenticeships

also to ensure that people have the time and money to participate (including a system of paid leave for training). However, the extra funding and obligations will need to ramp up gradually, as the economy recovers and both government and employers have the capacity to respond.

While creating an adult skills system capable of meeting the challenges posed by technology change will necessitate significant additional spending over time, what we propose will still be significantly less costly than current expenditure on higher education. The approach we recommend should boost productivity and prevent future structural unemployment so it is an investment, that will generate long-term benefits for the economy and increase government revenue.

At national level and local level, and within individual sectors, the new system should be run as a tripartite partnership, led by government, employers and trade unions, building on the model of the Scheme. In the spirit of this proposal employer organisations and trade unions should come together now to develop joint proposals for the fund and the design of a new service, National Retraining Scheme.

The remaining recommendations in this chapter set out the key components of this new integrated system.

14. Support unemployed people to 'work and train' on a permanent basis (Great Britain)

In chapter one we proposed a 'work and training' guarantee for the Covid-19 recession (recommendation 4). Once unemployment starts to fall this should evolve into a permanent offer to people receiving universal credit or jobseeker's allowance. We want to see unemployed people provided with structured help to 'work and train' as part of a long-term change to the support offered by DWP and Jobcentre Plus. This would form a key pillar of our new integrated skills system, providing support to people out of work.

Even once we are past the peak of Covid-19 unemployment there is likely to be considerable ongoing turnover in the labour market as employers adjust to the consequences of the Covid-19 crisis and the take-up of new technology. That is likely to mean that many unemployed people will need to acquire new skills and change occupations. Without support they face the risk of pro-

longed unemployment or of cycling in and out of insecure, low-skilled work; both of which could permanently reduce their employment opportunities and productive potential. We therefore need ongoing programmes to provide unemployed people with jobs and training.

In chapter one we set out how key elements of a 'work and train' offer for unemployed people could operate during recession and high unemployment. This should evolve into permanent programmes, as part of the new adult skills system:

- Skills and training should be at the heart of the support provided by Jobcentre Plus for people receiving benefits, with an expectation that everyone will learn while jobseeking and then move into a job with training included.
- A 'work and train' guarantee should be permanently available for people at risk of long-term unemployment. A long-term successor to the Future Jobs Fund and Kickstart should provide short-term paid jobs with accompanying training, or place people into apprenticeships.

Traditionally the DWP has been wary of supporting training as an alternative to finding a job because of its commitment to reducing unemployment. We understand the logic behind this 'work first' viewpoint as the belief was always that people would find it easier to find better-paid jobs or access training whilst in employment rather than unemployed. However, the reality is that many workers have not had any training or skills support once in work, and have stayed in low-skilled, low-paid and insecure work (often cycling in and out of brief periods of unemployment). Now, given our fears that demand for many low-skilled jobs is likely to fall, we believe a change is needed. Quality training should begin when people are out of work, with a structured and supported transition into continuing training in the workplace. In this labour market, we need a new approach that explicitly supports people to 'work and train' together.

15. Support incomes while workers train (UK)

We recommend that the government develops a package that will make it much easier for learners to afford to train. This should enable people to work part-time

and train part-time, to take short periods of time off work to train or, in the case of 19 to 21-year-olds, to train full-time. Designing policies that give people the time and money to train will be essential to the success of any new national skills system.

It is an employer's responsibility to provide people with training, during working time, to do their job effectively. Employers are also responsible for paying apprentices for the time they spend in formal learning off-the-job. But in other cases, where people are learning to advance their careers or change occupation, employers can't necessarily be expected to pay for tuition or pay people to learn. In these instances, many workers don't have the time or money to train, because committing to learning comes at the cost of foregone pay. So the government should create new schemes to enable people to upskill without losing too much of their income – whether they want to take temporary time off from a full-time job, or to move from unemployment into part-time work and part-time training.

Importantly, these proposals are designed to retain people's connection with work while they are training. We are not calling for people without jobs who would otherwise be expected to seek work to receive benefits only for studying (unless they are young adults up to the age of 21).

There are four elements to this package:

Financial support for 19 to 21 year-olds: FE students aged up to 21 should receive financial support for full-time education – either through universal credit or an 18–21 version of the education maintenance allowance.

Universal credit to support part-time training: the rules and guidance for universal credit should explicitly authorise part-time work and part-time study (participation on an accredited course should always be an acceptable reason to work part-time). Going further, universal credit could also include a 'work and train' bonus payment for people working part-time while enrolled in particular designated courses (eg first level 2 or 3 qualifications, and qualifications identified as meeting local skills needs).

Statutory training pay: The government should develop a new system of statutory training pay to provide a minimum amount of pay for time off to train. The scheme should only be fully implemented once the economy has recovered, but it could first be piloted (with full government

funding) in several low-skilled occupations or sectors that are vulnerable to automation. Statutory training pay would be available when employers agree to learning-related leave under the 'right to request' time-off for training. The scheme would be designed for training focused on career development not for on-the-job training required to carry out existing duties (here, employers would continue to pay employees' their full wages during training). The new payment could be set at around £30 per day (ie matching statutory maternity pay) with employers encouraged to pay more when able. The government should consider whether employers should be able to reclaim these payments, either in all cases or in specified circumstances (eg SMEs only or refunds for particular types of training).

We want to see apprenticeships mature into a broad-based system for the provision of intensive training to employees of all ages

Statutory training allowance: A similar training allowance could be established for workers without eligibility for statutory training pay who have a sufficient national insurance record (eg the self-employed). Self-employed and platform workers would then be able to access an equivalent to statutory training pay (modelled on maternity allowance) which would be conditional on participation in an approved course. This policy would need to be carefully tested and policed as self-employed workers would not have to make a request to their employer for training leave. It might be necessary to limit the scheme, for example by only permitting a maximum number of days of training leave over a certain period. To explore these questions further, the allowance should be piloted with a narrow group of low-skilled occupations before broad rollout.

16. Gradually build apprenticeships into the mainstream in-work pathway for intensive training (England)

During the Covid-19 recession, the priority for the apprenticeship system must be to support school leavers and people without

work into skilled, sustainable jobs: we want apprenticeships to be one of the principal pathways for unemployed people of all ages to secure a good job. We therefore welcome the government's decision to pay a bonus to employers who recruit new employees to start an apprenticeship during the Covid-19 crisis. Going further, spending on apprenticeships should rise significantly so they can serve as a high-volume pathway for hundreds of thousands of people to move from unemployment into skilled work.

In chapter one we said that while unemployment is high there should be no artificial constraints on the number of apprentices accepted: if employers are willing to pay an apprentice, then money should be available to train them. For the time being funding for training new recruit apprentices should therefore be available on an unlimited basis, covering all off-the-job tuition costs. This is a manageable financial risk for the government because employers will only be able to expand their apprenticeship provision to the extent they can afford to pay new salaries (and there should be a cap on spending on apprenticeships for existing employees).

Then, as the economy strengthens and unemployment starts to fall, we want to see apprenticeships mature into a broad-based system for the provision of intensive, accredited training to employees of all ages and all occupational levels, whether they are starting out, reskilling or advancing in their career. Apprenticeships should evolve into pathways for anyone who would benefit from 12 or more months of training, at least one day a week, on an accredited programme. As long as young and unemployed recruits are already benefiting from apprenticeships in significant numbers (following the immediate measures we recommend) then ramping up the availability of apprenticeships for career change and career advancement among existing employees is highly desirable in the face of the rapid changes to jobs and skills we expect.

This approach to gradually developing a high-volume system of in-work training builds on the recently introduced apprenticeship levy, at a time when stability is likely to encourage employer support and participation. It is a strategy for maximising the potential of the current design of the apprenticeship system, and targets public resources towards expensive, intensive training. At this time, we do not support proposals to widen

the apprenticeship levy into a more generic skills levy to pay for less intensive packages of off-the-job training – although that might be an option for the future.

During the recession, extra spending on apprenticeships should be funded by the government

The government should commit to funding all the training costs of apprenticeships for all employers (SMEs only receive 90 per cent of costs at present, although the prime minister has suggested they will receive more help in future).⁹⁶ If employer take-up remains weak, the government should explore wage subsidies for apprentices' off-site training (building on the temporary bonuses for hiring apprentices available until February 2021). For example, the government could explore covering some of the wage costs of apprentices in SMEs or under the age of 25. However, as a condition of any wage subsidy employers should be required to monitor and report on the diversity of apprenticeships and explain in writing if the profiles of their apprentices is unrepresentative of the labour market.

During the recession, extra spending on apprenticeships should be funded by the taxpayer rather than through an increase in the apprenticeship levy, since it forms part of the government's response to unemployment, and fiscal support for the economy. Once the economy has stabilised, given the huge value to employers and the overall economy of a well-trained workforce, the government should consult on the case for an increased employer levy as a partial contribution to paying for the rising number of apprentices – for example through reducing the threshold for paying the apprenticeship levy from £3m to £1m payroll costs, or increasing the levy. But there should be no expectation that the apprenticeship levy should necessarily pay for the entire cost of apprenticeships.

17. Support local areas and sectors to fund high-priority technical qualifications beyond the new national entitlement to free adult training (England)

We welcome the government's decision to use the new National Skills Fund to

create what it calls a ‘lifetime skills guarantee’ with an offer of a free level 3 qualification to anyone without one. This reverses the government’s decision in 2012 to cut all tuition subsidies to people aged over 23 wanting to take level 3 courses. The expanded national entitlement should now consist of a first free level 2 and level 3 qualification for adults of all ages, and basic literacy, numeracy and digital training whenever necessary.

This national offer should however be supplemented by access to funded qualifications in strategically important areas.

- **Local areas should offer additional funded qualifications in priority skills.** Local skills funders should be mandated to use their devolved adult skills budgets to offer additional funded qualifications in skills that meet the needs of their local economy. This should include access to qualifications at the same level as learners have al-

ready achieved and qualifications at level 4 and above. This is a better approach than the government’s proposal to fund higher FE qualifications through the system for HE tuition loans.

Local skills funders should offer funded qualifications that meet the needs of their local economy

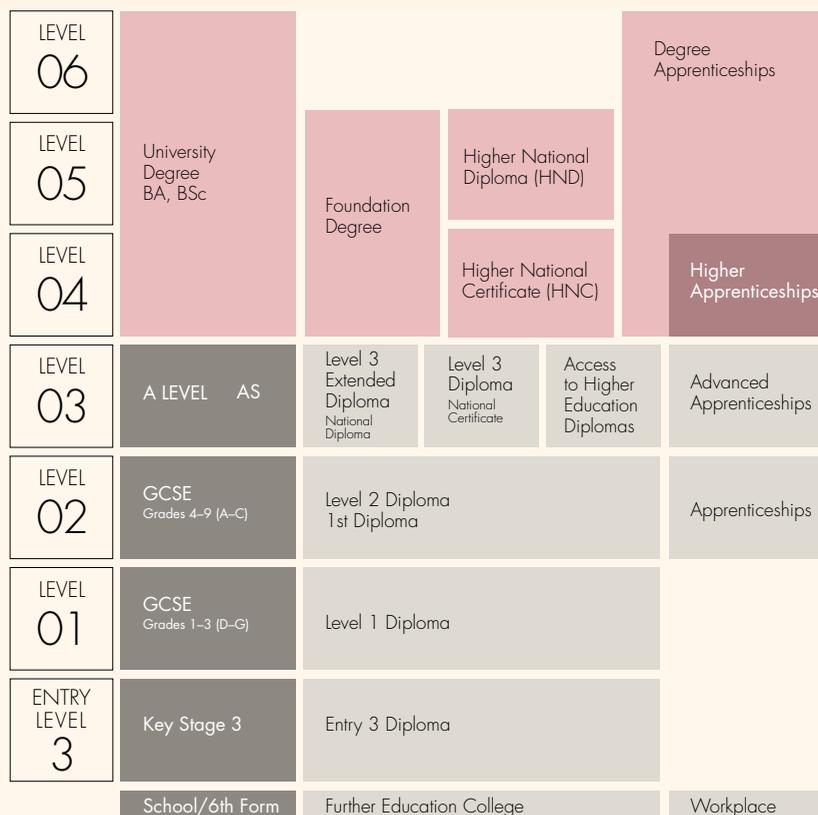
- **Sectors should be supported to strengthen their own occupational training and accreditation pathways.** The government should also consider providing match-funding to support comprehensive sector-led training and accreditation programmes focused on reskilling, specialisation and advance-

ment. Public money could be contingent on their also being a significant funding offer from employers; and where the programme is designed in partnership between the public sector, employers and worker representatives. Programmes would need to be designed to support SMEs and the self-employed, not just large employers.

These plans to supplement the government’s new entitlement would enable adults of all ages to access those qualifications determined to be strategically important by sectoral and local stakeholders. It would see public funding for adult education expand to provide for strategically selected training up to level 6 degree-equivalent qualifications (but not including university degrees). This package would also provide an incentive for sectors to strengthen training and accreditation pathways for continual reskilling, specialisation and career advancement.

QUALIFICATION LEVELS EXPLAINED⁹⁷

Under the regulated qualifications framework, there are nine qualification levels in England, with a very similar approach followed in Wales and Northern Ireland (in Scotland there is a 12-level framework defined under the Scottish credit and qualifications framework). Levels indicate the difficulty and the complexity of the knowledge and skills associated with any qualification. Qualifications may be of different ‘sizes’ within the levels, meaning that they take a learner more or less time to achieve.⁹⁸



18. Create a new national digital service to support all workers to retrain and expand the Union Learning Fund (England)

We recommend that the UK government creates a new national support service to help people to plan their careers and retrain, to act as a coherent national gateway for all our proposals on skills and training. One cost-effective option would be to create a personalised digital portal for all workers to be accompanied by a major promotional campaign and automatic employer-facilitated enrolment.

Each learner's portal could include:

- A personal lifetime record of all accredited learning and qualifications – and any non-accredited learning the user wished to add including workplace training, informal online learning and union-supported learning.
- A hub for accessing free bite-sized learning from a wide range of providers. This would build on the National Careers Service's skills toolkit and could be curated and developed by a respected third-party organisation such as the Open University. The Covid-19 crisis has sparked new interest in engaging in such learning – with the Open University's OpenLearn platform seeing daily log-ins quadruple, and Google seeing a 300 per cent increase in people taking their free training courses.⁹⁹
- Personalised careers support, with online advice and planning tools followed by referrals to careers advisers. This would build on current provision from the National Careers Service (which mainly supports people without a job) and the 'Get help to retrain' pilots (part of the former National Retraining Scheme). To achieve this the government could look to boost investment in data-driven career guidance tools, by scaling up innovation funds like Nesta's CareerTech Challenge and the Rapid Recovery Challenge.¹⁰⁰
- Personalised information on the user's entitlements to free education (dependent on their previous qualifications, location and occupation); and to the financial support available while taking time off to train.

- Information about courses and apprenticeships from individual providers and an online enrolment facility.

Each of these elements could be taken forward individually (as we are seeing with the rapid expansion of the National Careers Service digital offer during the Covid-19 crisis). But we think there would be great benefit in creating a single national platform and offer from the perspective of driving people's awareness and engagement. To succeed it would need to be promoted and facilitated by employers (this would be one of several new employer responsibilities for adult skills – see recommendation 20). The change in culture and practice required to improve adult skills demands a national, mandatory intervention, learning lessons from success in other areas such as 'automatic enrolment' workplace pensions.

This proposal is modelled on plans proposed by the 2019 Lifelong Learning Commission and would build on the developmental work carried out by the former National Retraining Scheme. It is a significant reform and detailed scoping, design and consultation would be needed prior to implementation. The development of the programme could be steered by a partnership of government, business, unions and education providers (building on the model of the National Retraining Scheme), under the auspices of the new National Skills Fund.

Trade unions should be active partners in delivering as well as designing the service. The existing Union Learning Fund could be repurposed to become a trade union-based arm of this personalised learning offer, delivering advice and bite-sized learning that would support workers make good use of the online portal and take steps onto further learning. Independent evaluations of the Union Learning Fund show that union-led learning is effective in engaging individuals in training and education and enhancing rates of participation and outcomes for learners.¹⁰¹

In light of this, the government should reverse its decision to scrap funding for union learning after March 2021.¹⁰² Instead, funding should be significantly increased in the context of the programme being repurposed to support a flagship government policy. The cost of reversing the cuts of recent years would be £24m annually.¹⁰³

19. Reform Jobcentre Plus and create 'work and skills' hubs in every part of the country (Great Britain)

We recommend that Jobcentre Plus should evolve over five years into a 'work and skills' service – open to those in work as well as those without a job – and be integrated with other local services as part of devolution arrangements.

Once unemployment is starting to fall and job centres are no longer in 'firefighting' mode, fundamental changes should take place to adapt Jobcentre Plus to the new labour market. In future, any individual walking into a job centre should find the courses, information and advice they need to support them into work, to progress or to retrain – and the service should be rebranded to signal this shift. We therefore recommend:

- **Devolution:** The DWP should determine a set of core services to be provided in all areas so that Jobcentre Plus delivers a national spine of employment support linked to benefits. Additional funding and commissioning of services should be devolved and local leaders would be tasked with developing integrated programmes offering employment support, careers guidance and skills, in a way designed to meet the needs of the local economy, involving local employers and trade unions.
- **Service integration:** The reformed service should be open to all benefit recipients and everyone in work. Depending on local decisions, bringing together Jobcentre Plus and careers and skills support activities might involve either the merging or co-location of Jobcentre Plus and National Careers Service functions, with local 'work and skills' services tasked with supporting people not just into work but also apprenticeships and further or higher education. This would be a locally tailored, adviser-led service that would provide personalised support, building on the foundations of our proposed national digital skills portal.
- **Local hubs:** Jobcentre Plus buildings themselves should develop into community 'work and skills' hubs and be rebranded in turn – providing access points for careers support and training for workers, as well as help for people



without work. They should continue to expand their presence into more visible, public places – especially empty premises on the high street – and co-locate with other services. As much as possible, advisers should engage with clients using digital communications, including messages and video calls – using both the universal credit online journal and our proposed digital learning portal.

20. Over time introduce new requirements on employers to support training and skills (England/UK)

We recommend that the UK government gradually introduces new obligations on all employers in order to transform attitudes and practices to skills across the economy; we will only solve our national adult skills challenges if all employers shoulder more of the burden. But requirements need to be phased in over a number of years, with no extra responsibilities introduced in the depths of recession.

The following measures should be explored, as part of a sequenced package to help employers to do the right thing on training:

- **Skills reviews and plans:** Every employer with more than five workers could have a duty to undertake skills reviews and draw up plans. This might involve a requirement to undertake a review of their current and future skills needs;

make an assessment of the current skills of their workforce and training provision available; produce a written plan stating how they will meet their future skills needs; and consult employees on their assessments and plan. As part of this duty the government could ask employers to plan structured on-the-job training programmes for every employee covering essential skills for the job and basic literacy, numeracy and digital skills. To support this duty significant support for employers should be available through digital resources and personalised advice (including diagnostic tools and information on training). Business support agencies (eg growth hubs) should be funded to provide information and support to SMEs to undertake this duty.

- **Promote and support personalised learning portals:** Every employer could be required to facilitate, promote and support our proposed digital learning portals (see recommendation 18). For example, employers could be required to create or update accounts for employees; and add information on work-based training. This would follow the model of auto-enrolment workplace pensions.
- **Expand the ‘right to request’ time off for training:** The existing right to request time off to train or study could be extended across the economy. For the

first time it would then cover employers with under 250 staff; employees with under six months service and workers who are not employees. The law should also be changed to clarify that workers can request time off for training to support their career development not just their current work (employers would still be able to refuse requests that did not meet their business needs).

Requirements on employers need to be phased in over a number of years

- **Administrate and partially fund statutory training pay:** Employers would be required to administrate and in due course potentially co-fund our proposed system of statutory training pay (see recommendation 15).

In addition, further obligations could be introduced on a sector-by-sector basis as part of sectoral skills and training agreements, which could involve mandatory employer participation in occupational training and accreditation programmes. More sectors could follow models such as early years (minimum numbers of people with certain qualifications in each setting); or construction (a sector-wide levy funding training and accreditation). ■

CASE STUDY: SIEMENS PLANT, CONGLETON

In June 2019, the commission visited Siemens' plant in Congleton, Cheshire to observe the use of new technologies in the manufacturing sector. The plant produces variable speed drives, used to control airport luggage conveyors and pumping systems.

Andrew Peters, managing director at the plant, explained the context of technology changes. Competition poses a constant risk to the site's existence: "Siemens Congleton has been and is under the threat of closure all of the time. Why? Because we've got factories in other parts of the world, like China, that are competing for the products that we make here." This has made boosting productivity critical. The message was clear: without innovation, Siemens Congleton, along with all its jobs, would disappear.

To develop the plant's product offer and improve productivity, new technologies are frequently introduced. Congleton has added a room dubbed the 'VR cave', in which new production processes can be simulated using virtual reality software. And new collaborative robots have been set to work alongside humans assembling drives.

This touches on three priorities for the commission:

- **Productivity and growth.** Managers expected that new innovations at the plant would lead to more, not fewer, people being employed. Rising productivity meant that the plan for the next five years was for "gradual headcount growth". This is not to say that all job roles would remain at Congleton; the introduction of new robots may cause some jobs to disappear, but this would be more than offset by new jobs created to satisfy increased customer demand.
- **Workers involved in designing change.** The VR cave has enabled employees to participate in shaping change more easily. Prior to the introduction of VR, when changes were made to production, engineers would build a 'cardboard city' to simulate a prototype workspace for factory operators to trial as part of a workshop process. At the time of our visit, the organisation had "run three successful workshops that have been fully digital". As an employee explained to us: "Now we have an engineer who sits at the back of the room on the laptop and, as the team are com-

ing up with these ideas, is effectively creating these environments out of the software." This has streamlined the process of redesigning the shop floor – it now takes eight weeks instead of 12 – and has led to better results too. Now, "about nine issues then make their way into the final production, as opposed to about 50 before".

- **Better work.** VR simulation to design new production cells has enabled easier, and more effective, identification of ergonomic and health and safety risks at Congleton. As one manager told us: "The ergonomic simulation tool ensures that while our operators are here, we actually are able to keep them safe ... We take the raw data from the simulation tool and we can constrain that into one programme whereby we know how heavy a drive is, how many iterations of that movement we're going to be doing throughout the day, what are the stresses and strains on the joints and the body. So when the operators are here for the eight hours that they're here, we're confident that they'll leave in the same state as they came in."

Chapter four: Better jobs

WE WANT TO see all jobs become good jobs as a result of technology change. New technology presents workers and employers with the chance to improve the quality of work, both in the sense of improving people's day-to-day experiences of their jobs and increasing the value they add to firms. Jobs can become more fulfilling; relationships with managers, colleagues and customers can grow stronger; and work can be more flexible, healthy and secure. The adoption of new technology should always be used to realise these opportunities and should never result in jobs getting worse.

While the quantity of jobs is likely to preoccupy policymakers for the foreseeable future as they grapple with the economic impact of Covid-19, we must not lose sight of the choices we face on job quality too. As we seek to tackle unemployment it is essential that plans for recovery have at their heart a vision not just of jobs but good jobs. We believe that technology change can lead to better jobs, but there are significant risks ahead. How we implement technology and who has a say really matter.

Reasons to be optimistic: We have seen repeated evidence of new technology improving the quality of jobs. The adoption of new technologies at work presents both employees and employers with the chance to improve the nature of work, and in doing

WHAT IS GOOD WORK?

The commission has identified seven key dimensions to 'good work':

- **Job security** including contracts that assure people sustained employment and minimum hours, unless workers actively opt for more flexibility because of their own circumstances.
- **Work-life balance** including reasonable hours, flexible working practices and the ability to control the boundaries around working life and combine with caring responsibilities and personal needs.
- **Healthy working conditions** with safe environments, good job design and workplace relationships that protect and enhance physical and mental health.
- **Control and fulfilment** with appropriate trust and autonomy, and job tasks that are interesting, valuable and meaningful.
- **Fair pay and benefits** that reflect workers' skills and contributions and the social responsibilities of employers. Discrimination in pay and benefits is unacceptable and everyone should be able to earn a living wage and access decent paid leave for sickness, parenting and holidays.
- **Opportunities for learning and progression** with training and support for workers to thrive in their current roles and to enable progression, career development and the ability to adapt to future change.
- **Power, voice and representation** with opportunities for workers to have a meaningful say at work through good management relationships and formal consultation and representation arrangements.

This chapter focuses on the first four of these dimensions, which most closely concern people's day-to-day experience of work. Other chapters examine the other three.

so to also improve productivity and the creative contribution workers make. The commission has gathered testimonies which show how technology is making work better, and how many people have already seen improvements in the quality of their jobs as a result of recent technology change. For example, we have heard about jobs becoming less physically demanding or risky thanks to the adoption of new robotics, and work that has become more rewarding and creative as routine tasks are removed.

Reasons to be worried: We have also seen significant evidence of technologies being used to reduce the quality of work by facilitating precarious working conditions, increasing work-related stress, and creating social isolation. We have found that too often new forms of flexibility come at the expense of social protections associated with more traditional kinds of employment. And we are concerned by the increase in employer use of technology for monitoring and surveillance, alongside excessive punitive practices reducing worker autonomy.

Our findings

We want technology change always to lead to better jobs, not worse ones. But we face major choices ahead. The way in which technology is implemented really matters. Decisions about which technologies to invest in and adopt are really important for the quality of work, so it also matters who makes those decisions and whether workers have a say – something we look at in the next chapter. The evidence we have seen leads us to be optimistic that technology can be used in a hugely positive way, but also to believe that this will not happen without stronger action involving government, employers and unions.

Technology is being used to significantly improve the quality of many jobs but decisions about how technology is implemented really matter

Evidence gathered by the commission suggests that technology change is already providing new ways of making work better. In many cases, when new technology is introduced, people see improvements in their experience of work and in the quality of their jobs. In our 2019 survey, 57 per cent of workers with jobs affected by new technologies in the last five years said it had had a positive impact while 7 per cent said neg-

ative. And testimonies from those we have spoken to reflect this finding – from warehouse operators in West Yorkshire whose jobs have been made less physically demanding, to financial services workers in Hampshire able to work remotely for companies based far from home.

But we also found huge variations even between similar workplaces in the way technology was being used and whether or not people felt the benefits. So, for example, we heard from workers and trade unions at one distribution warehouse where people felt new technology had been used to make jobs safer and more efficient and as a result had seen increased pay. But we heard from another similar warehouse about employees who felt technology was being used to monitor and punish them and make their work harder. In our view there is nothing inevitable about the kinds of technology employers choose to invest in or the ways those technologies are introduced. Important choices are being made that will determine the quality of different jobs in future.

Technology has enabled flexible working for more and more people

Flexible working, most notably remote working and working from home, has become an option for more and more people because of the proliferation of inexpensive, secure systems to link together employees with their employers.¹⁰⁴

Email, instant messaging and video conferencing facilitates fast communication between office and home; cloud technology allows people to access and share documents across space; and virtual switchboards and call centres permit call-based jobs to take place in the home. All this has been enabled by improved internet connections and these will get even better in coming years with the rollout of full-fibre broadband to homes and workplaces and 5G mobile networks.

Remote working was becoming gradually more common before Covid-19 hit: in 2019 1.3 million people always worked at home (up from 900,000 in 2008) and 4 million had worked at home in the previous week.¹⁰⁵ Now the crisis has proved that millions more workers can perform their jobs remotely: close to four in 10 adults – 20 million people – reported working at home during one week at the height of the lockdown.¹⁰⁶ Looking forward, this year's disruption is likely to lead to a permanent jump in home working, now that so many employers and employees have tried it and seen it is viable across a wide range of occupations

Before the Covid-19 crisis, many workers found that remote working substantially increased the quality of work, enabling them to combine skilled and rewarding jobs with caring responsibilities or to avoid daily commutes. Our conversations with individuals and employers prior to the pan-

CASE STUDY: CAT

Cat has worked in financial services in a customer contact centre for four years. She explains how new technology enabled her team to adapt to the coronavirus pandemic and improved her experience of work.

When the pandemic reached the UK, people in her team were provided with laptops, headsets and software to allow them to receive calls whilst at home. When team members needed support the company ensured team leaders and managers were available through Skype.

Cat says “in many ways my job has become a lot easier” since the shift to remote working as a response to the Covid-19 crisis. She explains that the quiet environment at home helps a lot with speaking to customers because, with over 100 people in the contact centre, the noise can sometimes be overwhelming and distracting.

An update to the tools used to monitor calls has also made her experience of work better. Her team deals with different types of calls; some of them require up to 20 minutes supporting the customer, whilst others are much quicker information-giving calls. The software used before the crisis took no account of the mix of calls people received, so a high proportion of in-depth calls would hit workers' personal performance statistics. The new system has introduced a measure of average duration by type of call, giving individuals greater confidence in how their work is managed.

Cat's company has now conducted a survey to check how working from home is going and whether workers have felt any benefit from it.

demographic indicated that many people in both groups welcomed the flexibility of technology-enabled home working. In a focus group of financial sector workers, one participant explained how his official workplace was 75 miles from his home. Anne Boden, chief executive of Starling Bank, told us: “We provide a 24/7 call centre in London – but not everybody can come into London or wants to come into London, so we have remote working.” She also told us that at Starling Bank new employees had to work initially for six weeks in the office to meet colleagues and build relationships, and also had to spend one week in every six to eight weeks covering office shifts to remain connected to the firm.

But there is more to flexibility than home working. Other forms of flexible working are also on the rise because of technology. CIPD told the commission that employers are using applications that give workers significant control over their own rostering and working hours.¹⁰⁷ Many employers have instituted ‘flexitime’ arrangements that utilise new technology to enable employees to decide exactly when and how they carry out their work.¹⁰⁸ And an entirely new form of flexibility has emerged with platform and gig work, enabled by apps that make it easy for workers to take on paid tasks at their discretion.

However, we have also heard concerns raised about the extent of home working made necessary by Covid-19, and the potential downsides of home working in terms of social isolation, insecurity and exploitation. As noted in chapter one some employers may well decide that expensive city and town centre office space is no longer needed on a permanent basis. While many might welcome this move, it makes home working a requirement rather than a flexible choice, and it could introduce real problems: many people thrive with colleagues around them, while employers often benefit from greater creativity when staff with different skills and ideas are able to interact formally and informally.¹⁰⁹

Technology-enabled flexibility can increase insecure and precarious work

Technology-enabled flexibility can come with significant drawbacks for workers, including the proliferation of precarious working contracts, increasing work-related stress, and social isolation. New forms

of flexibility are too often at the expense of social protections associated with more traditional kinds of employment – including statutory and contractual employment rights and the support of trade unions.¹¹⁰ Workers operating in the platform economy, for example, tend to be classified as self-employed contractors (sometimes erroneously) and lose out on employment rights, employer-provided training and certain social security entitlements.¹¹¹

Many gig economy workers value flexibility over the security of having a regular employee contract: Uber told us that of their London drivers “81 per cent state that they prefer to remain independent contractors rather than be classified as an employee and lose the flexibility of setting their own schedule”. However, stronger protections and more worker voice is needed, so that people in these emerging types of jobs have genuine agency when it comes to determining the balance between security and flexibility.

Platform work is just one example of the rise of self-employment. The share of workers who are self-employed has risen from 12 per cent in 2000 to 15 per cent in 2019.¹¹² While most self-employed workers are self-employed because they want to be, the status comes without the protections of the employment relationship – including entitlement to contributory jobseeker’s allowance, maternity and paternity pay, pension contributions, paid holiday or sick pay.

The intermediate category of ‘worker’ provides many of these protections and is the accurate status for people personally providing services where the hiring organisation has a high degree of control. However, there is evidence that many firms are incorrectly treating people as self-employed contractors rather than ‘workers’ or failing to uphold workers’ rights. This is partly to side-step employers’ obligations to their workers, but it is also motivated by tax rules. Under separate tax laws most ‘workers’ are treated as employees and firms have to pay employers’ national insurance (which in turn confers entitlements for the worker such as statutory maternity pay and contribution-based JSA).

We are particularly concerned that new technology may facilitate the substitution of traditional employee jobs for fragmented tasks and gigs. Prior to Covid-19 firms and businesses were increasingly able to hire people by the hour or by the task, often facilitated by online platforms and monitoring software. This kind of flexibility, if it suits both sides, can increase efficiency in matching the work with the worker, and expand the total amount of work available. However, the economic risk is increasingly being borne by individuals rather than firms, which are better equipped to pool, share or insure against risks. If something suddenly affects demand for the firm’s services – be it a new competitor, stronger regulations, the weather or a global

SELF-EMPLOYED OR WORKER?

The UK Supreme Court is preparing to rule on whether Uber drivers are self-employed contractors or workers for the purposes of employment law. The decision is likely to have significant implications for technology-enabled platform jobs.

- *Self-employed contractors* are only protected by health and safety and anti-discrimination laws.
- *Workers* are also entitled to the minimum wage, paid holiday, working-time protections and in many cases pension contributions and pay for sickness, maternity etc.

The existing boundary between the two categories is complex and contested. A worker is required to do the work themselves, has significant control exercised over them, has ongoing two-way obligations and is not operating as a business.

In 2018 the government promised it would introduce legislation to clarify and improve the distinction between workers and genuinely self-employed contractors, following the recommendations of the Taylor review on modern working practices. Since then no further action has been taken.

pandemic – it is the worker who tends to pay the price and has to cope with falling or fluctuating income as a result.

The widespread transfer of risk from firm to worker across the economy is a matter of significant concern. Those with the highest skills and earning power may be able to insure effectively against greater risk and enjoy both flexibility and security. But many middle and lower-paid workers are having to accept much greater insecurity as the price of getting the flexibility they need, even though that leaves them hugely vulnerable to economic risk, and means in practice the state has to step in to prevent hardship. There are also many people, especially on low pay, who did not choose flexibility at all, but found this was the only work available. In the context of a major recession and the rapid rise of distance working, we are worried that many employers could make a significant shift away from the employee jobs we associate with offices towards the commissioning of atomised tasks and gigs undertaken by home-based workers – potentially with worse hours, conditions and job security.

Insecurity is also a feature of working life for many in traditional employee jobs. Well before the Covid-19 crisis, in 2017, more than a quarter of employees were worried about losing their job – and among lower income employees, earning less than £1,200 per month, the figure was 37 per cent. People on low incomes also reported significant insecurity when it came to working hours, with almost three in 10 saying they did not know what hours they would be working in the next month.¹¹³ Participants in our focus group made up of retail sector workers were particularly concerned by the proliferation of zero-hours contracts, and were in firm agreement that for the vast majority of employees these represented flexibility for the employer only. As one participant told us: “I don’t know anyone who is happy with zero-hours contracts”. The advance of new technologies must not be allowed deepen insecurity for these workers.

Technology can lead to safer, fairer, more human work

New technology is relieving people of repetitive and dangerous tasks, so that they can spend a higher share of their time on more interesting, creative or fulfilling tasks. When we visited the Advanced Manufac-

turing Research Centre (AMRC) in Sheffield we heard from one business that was investing in technology that would stop workers having to lift “hot components up at 950°C”. Another employer admitted her employees were routinely suffering injuries and said she was introducing automation that would be “better health-wise as well as productivity-wise”.

New technology can change the composition of job tasks, removing repetition and strenuous physical activities and freeing up time to be spent on dimensions of jobs that add most value. Book-keeping is one area where advances in software have driven rapid change to the nature of work. The Association of Accounting Technicians (AAT) told us that their members “consistently state that automation is creating more time for them to concentrate on other, often higher value work”. Meanwhile in the retail sector, even before the coronavirus crisis, technology was changing the extent to which staff had to carry out repetitive tasks. A spokesperson for the shopworkers’ trade union Usdaw told the commission: “Tesco, for example, automated the process of doing a stock check. So, rather than having to count the amount of beans that are left on a shelf, there’s now an automatic process that would know how many tins of beans are left there. It gets rid of those repetitive tasks and frees people up for more customer interaction.”

Less time spent on routine tasks generates potential for jobs to become more interesting, creative and human-centred. A Nesta study predicting skills demand in 2030 found that future occupations will increasingly require interpersonal skills like social perceptiveness and active listening – along with judgment and decision-making skills, and cognitive abilities such as having fluency of ideas and originality.¹¹⁴

Ushaw also explained how new technologies can make workplaces fairer. For example, distribution drivers had praised the installation of cameras in their vehicles because they prevent unfair blame: “...if they’re getting cut up or if they’re involved in an accident, they can prove whether it’s their fault or not, whereas a lot of the cases previously [the company] assumed that the worker would be at fault. Or, [drivers] were getting into disciplinary probes and they couldn’t truly defend themselves because it was their word against a member of the public.”

And shop-floor workers had welcomed software that improved the fairness and transparency of rostering: “...retailers will have these app systems for allocating shifts and having that clear system in place... It means that the app automatically checks that the rota is in place three or four weeks beforehand, whereas if it was just the manager on their own then it’s at whatever point the manager puts it up on the board. And those people who can use the app and have got the right digital skills, they know how to check if things have been changed, and there’s a clear log of it on the app whereas previously that wasn’t necessarily the case. And they can usually go back – so if the pay is wrong, next month they can easily go back on the app and check exactly what they did, whereas that wasn’t always the case.”

Technology is extending opportunities for employer control, monitoring and surveillance

We also heard that new technology is encouraging excessively punitive practices by employers and reducing worker autonomy. Two examples of intensive surveillance and associated disciplinary methods were provided by James Bloodworth, drawing from his experiences working for Amazon and Uber while researching his book *Hired*, which documents his experiences working undercover in low-paid, low-status jobs. He told the commission: “In the Amazon warehouse you had to take around a device at all times and it could track where you were in the warehouse. A human manager could send messages to admonish you for something you’ve done wrong. It was constantly monitoring what you were doing with your time, whether you’d scanned an item, whether you were going to the toilet and then from this data a human manager would then admonish or give you a disciplinary for taking too long. If you spent too long going to the bathroom, if you clocked in a couple of minutes late, you would receive a disciplinary for that.”

In the case of Uber, Bloodworth told us that algorithmic processes were used as a means of control. As an Uber driver, if your customer rating “fell below 4.7 stars you were told during your induction that you would be hauled into the office ... and given instruction on how to improve your customer service”. Bloodworth was told that if the star rating remained below this level, a temporary and then permanent ban would

follow: “effectively, they would deprive you of your livelihood when you were supposedly self-employed in the first place”.

In February 2020, Barclays introduced a computer monitoring system that tracked the time employees spent at their desks, registering how long users were offline. Following a backlash from staff and privacy campaigners, the system was scrapped shortly afterwards.

Silkie Carlo, director of campaign group Big Brother Watch, said: “Managers would never get away with breathing down employee’s necks, personally monitoring their screens or logging toilet and water breaks... the availability of technology to [monitor] staff surreptitiously does not make it any more acceptable.”¹¹⁵

Problematic, tech-enabled monitoring and surveillance practices appear to be increasingly common, beyond just platform businesses. A 2018 TUC study found that almost three-quarters of workers thought it was very or fairly likely that some form of monitoring was happening in their workplace; almost half of workers thought emails and browser histories were being monitored; 42 per cent thought calls were being recorded; and 23 per cent thought that employees were being monitored via location-tracking devices like smartphones or wearable technology.¹¹⁶ Prior to the Covid-19 crisis, workers were more concerned by the rise of workplace surveillance than about their job disappearing through automation. The RSA found that while 32 per cent of workers worried about losing their job to technology, 50 per cent worried about technology being used to excessively monitor them.¹¹⁷

The intensity of work is increasing, especially for low-skilled workers

For some people technology change is resulting in the intensification of work. The proportion of workers who ‘often’ or ‘always’ find their work stressful increased from 28 per cent in 1989 to 37 per cent in 2015, and in recent years it is those in low-skilled jobs who have been reporting rises in work-related stress.¹¹⁸ Commenting on the 2017 Skills and Employment Survey, researchers at the University of Cardiff wrote: “...new technologies have made it increasingly easy to schedule and fill up the working day with tasks, and indeed to reach people even after they have officially left work using e-mails and mobile phones. Auto-

mated scheduling means that there are fewer gaps during the day with employees resting... Workers have been obliged to deal with increasing workflows, not least in public sector industries where the work to be done has expanded but not been matched by additional staffing. To cope with the increased throughput of work, workers have had to work harder and faster.”¹¹⁹

With so many workers having remote access to emails and work-related messages, there is now an ‘always on’ culture in some workplaces and occupations, with consequences in terms of stress, mental health and family life. There is a risk that this phenomenon becomes entrenched, with the steep rise in home working further blurring boundaries between personal time and the working day through the Covid-19 crisis. Technology can also generate more work directly, for example when it produces new data to analyse, new potential tasks or procedures to carry out, or new demands for cyber security. Employers may also have unrealistic expectations about what more can be achieved without employees having to work more intensively, following the adoption of new technology.¹²⁰

Increased intensity and the erosion of a healthy work-life balance is actively bad for workers – but there is no real evidence that it benefits employers. Studies have found that there is no significant relationship between practices that undermine work-life balance and productivity improvements in the workplace.¹²¹ Businesses do not need to encroach on employees’ family lives to drive up productivity and, if they try, they are unlikely to see any results.

How technology is designed and implemented matters immensely

The problem of intensification of work is also often linked to the bad design or implementation of technology. Some workers have to operate poorly-designed technology that is difficult to use, breaks down or makes errors, and in these cases the pressure to solve or work around technology-related problems represents a significant source of stress and anxiety.¹²²

For example, a worker in financial services told us how poor planning of technology implementation led to more pressure on staff: “There is also an element that I’ve seen in projects that I’ve been involved in, that the head count is reduced before the system works. So the workload goes up but the sys-

tem has got so many errors and issues and, actually, what tends to happen is they ditch the system because it doesn’t work and the staffing level stays the same. So that pressure just goes up and up and up.”

In general people appreciate new technology in the workplace when it is perceived to be ‘right for the job’, and dislike it when it is dysfunctional, unsuitable or misunderstood by managers. In other words, the way technology is used makes the difference between it having a positive or negative impact on people’s working lives. For example, in one focus group a pensions administrator lamented their employer’s failure to reverse a poor technology investment: “It’s kind of tough because they’ve already spent the money doing it and you’ve got to just go with it basically. So then they don’t really take [your views] on board, because they’ve already spent all this money rolling out this new system that they then don’t really care if you like to use it or not.”

A financial services worker who was mainly positive about their firm’s approach to technology had this warning about automation: “You need to just check: does it need to be automated? Will someone get a better outcome from it being automated? Make sure you check everything before you automate it.” And a PCS union rep told us that successful adoption of a new technology in the aviation sector had depended on “an individual from the shop floor who had the skills to help with the design and introduction”.

Facial recognition is a key example of a new technology where there is a huge gulf between good and bad implementation. Most workers are suspicious: according to the TUC, around three in four workers think that using facial recognition software in a monitoring capacity is unacceptable.¹²³ But positive applications, supported by trade union dialogue, exist: an Usdaw spokesperson told us how a retailer had introduced facial recognition technology to detect customers with a history of harassing staff, which had improved conditions for their members in those workplaces.

Technology can negatively impact personal interaction in the workplace

New technologies can reduce the human interaction that is a valued aspect of many service jobs. A recurring theme from our focus groups was the dissatisfaction people felt when new technology reduced their

face-to-face interaction with colleagues and customers. One retail worker in Doncaster told us that “you’re sort of losing the face-to-face and the interaction with the customer”. A bar supervisor in Manchester told us he thought new tech in his workplace would “get rid of communication and the customer service side of things”. Speaking before the coronavirus crisis upended the hospitality sector, he talked with reluctance about the way his firm had tested placing orders via an interactive screen: “...we trialled it... the company that I’m working for now they trialled and it just... it just ruined communication. The whole job is built around customer service. I mean the hint’s in the name: hospitality. But you can’t give hospitality through a screen.”

Because of the lockdown, millions have people have seen these fears borne out, with enforced home working leading to isolation

A salesperson in Leicester worried that “if everything’s become so automated then people are going to become lonelier because there’s just no face-to-face”. Because of the coronavirus lockdown, millions of people have seen these fears borne out, with enforced home working leading to isolation and anxiety. Even in more normal times, while home workers have higher levels of overall happiness than their office-based counterparts, they report worse relationships with colleagues and less contact with their managers.¹²⁴

Recommendations

We want technology change always to lead to better jobs. Therefore the decisions on which new technology to invest in and how it should be implemented are crucial. If those decisions are taken well, with job quality and staff wellbeing in mind, then that is likely to lead to more successful and sustainable decisions as well as even greater improvements in productivity. We set out in the next chapter the importance of workers having a say in the way new technology is adopted and the impact that has on the

sustainability of decision-making. In this chapter we set out other measures that can help steer technology in the right direction so that it improves the quality of work.

21. Establish good work standards and require large employers to take part to access government procurement and grants (England or UK)

We recommend the establishment of a national good work standard drawn up by employers and trade unions and supported by the UK government. The scheme should be voluntary but for larger businesses, government decisions on public procurement and access to funding for innovation, business support or skills could be contingent on firms either adopting or working towards the standard. The development of the standard should be led jointly by the social partners and backed by the Department for Business, Energy and Industrial Strategy (BEIS) and the Industrial Strategy Council.

The good work standard would encourage businesses to go beyond minimum requirements across the four elements we highlight in this report. For example, the standard could include the following elements:

Fair share

- Pay the real living wage.
- Paid leave schemes beyond the statutory minimum.
- Measure and address under-representation among disadvantaged groups.

Support to adapt

- Learning programmes for all workers.
- Apprenticeships & traineeships.

- Progression pathways.

Better jobs

- Health and wellbeing initiatives.
- Flexible working available to all.
- Limits on zero-hours work.

Representation and voice

- Collective pay bargaining.
- Consultation on technology and job design.
- Consultation on skills and working conditions.

Employers and workers are best placed to promote take-up across their sector

We also recommend that for each industry a designated sectoral social partnership body should develop its own good work standard. The national standard should set a baseline but, since the nature of good work varies by sector, employers and workers within each industry are best placed to agree detailed specifications and promote understanding and take-up across their sector. The development of these industry-specific standards should draw on experiences of agreeing tailored city-level charters as well as initiatives such as the cooperation agreement between the London 2012 Olympics and the TUC. Sub-national good work initiatives should also continue to exist, to build on the core national expectations.

CITY-LEVEL GOOD WORK STANDARDS

London and Greater Manchester already have good work charters as do Oldham, Salford, Croydon, Derby and Sheffield – and Liverpool city region is consulting on its own. Other local authorities have adopted social value or social responsibility charters, including Preston, Birmingham and Leeds.¹²⁵

The London good work standard covers fair pay and conditions, workplace wellbeing, skills and progression, and diversity and recruitment

The Greater Manchester good employment charter covers secure work, flexible work, the real living wage, engagement and voice, recruitment, people management, health and wellbeing.

22. Introduce a stronger universal right to request flexible work (UK)

We recommend that the right to request flexible working is expanded in response to technology changes that are making remote working and working flexible hours much easier.

The coronavirus crisis has demonstrated that a very high proportion of jobs can be undertaken remotely using technology; while rostering and payroll software is making it easier and easier to offer flexibility in hours.

To create a permanent shift with respect to flexible and remote working a universal flexible working right should be introduced that applies to all workers. This would mean extending the right to request to those who are not classed as ‘employees’; and to job applicants and employees with less than 6 months’ service. The latter is particularly important as it will help change the way jobs are initially designed and advertised. As with the existing law, employers would be able to refuse requests for an objective business reason specified in legislation.

Guidance on flexible working law could also be revised to promote types of flexible work that will help challenge the idea of ‘normal’ working patterns. For example, Acas and government material on flexible working options could include the examples of workers making small reductions to their daily hours; or choosing a higher leave allowance in return for lower annual pay.

23. Create a platform economy council to improve gig work (UK)

We recommend that the UK government convenes a new platform economy council, as a social partnership body for platform work. This proposal is particularly important because platform workers and small businesses have limited rights with respect to platform providers, and there is no legal framework for trade union representation at firm level in cases where workers are not employees.

Initially the government should convene the council on a voluntary basis. We expect that platform businesses across the sector will want to engage with the council as an opportunity to collectively determine their future alongside workers and government. Once established, we would expect it to be able to move onto a statutory footing, making it more effective by scaling up participation.

The remit of the council should be subject to negotiation between platform

businesses, trade unions and other stakeholders. It could be tasked with:

- Developing a good work standard for platform work including minimum expectations on consultation, training, worker entitlements and benefits.
- Reviewing options for sector-wide investment in skills and training provision for platform workers.
- Sectoral collective bargaining to determine minimum rates for different occupational groups or gig economy activities – we would propose that minimum hourly earnings should exceed the national living wage to reflect the greater risk and lower protection associated with gig work.
- Promoting services providing independent reviews or accreditation of working conditions and worker experience at platform businesses – eg the Oxford Internet Institute’s Fairwork initiative.
- Developing proposals for a voluntary sector-wide scheme for transferable worker benefits and entitlements that could be accrued and accessed while working for platform companies.

IG METALL: HOLDING PLATFORMS TO ACCOUNT IN GERMANY

IG Metall is Germany’s largest trade union and has been involved in efforts to improve the quality of work for platform workers in Germany and beyond.

One initiative is known as the ‘Ombuds Office’. As IG Metall project secretary Six Silberman told us, the office was set up to enforce the crowdsourcing code of conduct, a guideline agreed by a number of crowdsourcing companies establishing what good work looks like in the online gig economy.

If a platform worker completing a job for one of the signatories to the crowdsourcing code of conduct feels the platform has not fulfilled its obligations according to the code, the worker can submit a complaint to the Ombuds Office. The office, which is a bilateral body with representation from both sides, then mediates between the crowdsourcing platform and the worker.

IG Metall also operates the ‘Fair Crowd Work’ website, in partnership with the Austrian Chamber of Labour, the Austrian Trade Union Confederation and Sweden’s Unionen. Fair Crowd Work provides information for workers on a range of issues related to platform work – including reviews and ratings of working conditions on different platforms, based on desk research and worker surveys.

THE MACHINISTS UNION: WORKING IN PARTNERSHIP WITH UBER

In the USA, the Machinists Union is developing a system of portable benefits and independent peer review hearings with Uber. In 2016 a five-year deal was struck in New York City between Uber and the union. It allows drivers in the city to join the Independent Drivers Guild, a Machinists Union affiliate that represents over 80,000 hire vehicle drivers in New York City. The guild provides drivers with benefits, including regular meetings with management and if they lose the right to drive, they will have the right to representations.

The union and Uber can now negotiate on issues such as fares and has successfully campaigned for passengers to have the option to tip drivers within the app, a feature subsequently rolled out across the USA and worldwide. This has resulted in drivers receiving millions of dollars in additional income. The guild has set up a benefit fund for the drivers. It offers drivers discounted legal services, life insurance, disability insurance, education courses, roadside assistance and an online hub to access resources. The guild now campaigns in partnership with Uber, for example, to lobby New York City to reduce tax rates.

The agreement has been hailed as a big step forward. It is the first time that drivers for Uber have had a formal link with an organised union. However, the deal stipulated that there could be no attempt to unionise individual drivers for five years, leading some sceptics to portray it as a surrender.

- Promoting and facilitating firm-level agreements between unions and individual platform businesses.

The council would not be expected to take a view on the legal framework for employment and self-employment in order to maintain collegiate partnership between businesses and worker representatives. Its initiatives should not be designed with a view to changing the legal employment status of platform workers at particular firms.

24. Clarify who is eligible for employment rights and seek to eliminate financial incentives for employers to use contractors rather than employees (UK)

We recommend that the government fulfils its promise to legislate to create a clear definition of a ‘worker’, in order to provide people with employment rights in situations where they personally undertake work and there is substantial control by the hiring organisation.¹²⁶ Continuing action is also needed to eliminate financial incentives for employers to choose to use contractors over employees.

The Taylor Review of modern working practices examined the question of employment status in detail. It concluded that the UK should continue to have three types of employment status with different rights: employees, other ‘workers’ and people who are self-employed. The TUC disagrees and argues that there should be two groups, with all workers having the same rights as employees.¹²⁷ But both believe action is needed to specify and update the boundaries between contractors who are workers under the control of an employer (and have a broad range of employment rights) and contractors who are self-employed and running a business (and have very few workplace rights).

The Taylor Review called for legislation to codify and clarify the categories and for a slightly broader, more intuitive definition of a ‘worker’ than exists in current caselaw. It wanted to end a loophole where people are not treated as workers if their contract states they can theoretically send a substitute in their place. The law should also be clarified to specify that businesses still have responsibilities with respect to workers’ employment rights, even if the worker is also an employee of an intermediary

company. Finally, the law needs to clearly specify when people whose work is facilitated by a platform business are working for the platform, as opposed to selling a service to the end user.

The government was initially positive about reform in this area. Following a consultation, in 2018 it published the Good Work Plan which said: “We will legislate to improve the clarity of the employment status tests, reflecting the reality of modern working relationships”.¹²⁸ However, ministers have not introduced new legislation in the subsequent two years and at present they are only promising to introduce a bill sometime during the 2019–2024 parliament.¹²⁹

As an urgent first step, the government should prioritise fulfilling its promise to introduce this legislation – and should, in the longer term, consult on further changes to employment status definitions as the nature of work continues to shift through the decade. In particular ministers need to monitor the impact of Covid-19 and increased remote working on the balance between traditional employment and freelance or platform working and be ready to act if there is evidence that people are shifting in large numbers to less secure forms of work.

In practice few people are exercising their right for a human to be involved in decisions

The government should also continue to take action to reduce the financial incentives for employers to use contractors instead of employees, which are principally caused by employers’ national insurance contributions (NICs). Businesses do not need to pay NICs for contractors who are genuinely self-employed, however employers’ NICs often go unpaid in situations where the law says a contractor is not self-employed. In 2021 HMRC will introduce rules to address this issue. Large businesses will be required to make a determination as to whether an individual is an employee for tax purposes (a broadly similar definition to being a worker in employment law). If this is the case the employer will need to deduct tax and national insurance through

PAYE, even if the worker is paid through a limited company (except if a recruitment agency or a contractors’ ‘umbrella’ company makes the deductions instead). This is widely expected to lead to a significant increase in the number of freelance engagements where employers’ NICs are paid.

This reform will improve compliance rather than change the underlying law. However, it is only fair that where people are taxed as employees, they are also able to access all the benefits associated with being a worker. HMRC should require employers who determine that national insurance is payable to set out in their status determination statements all the benefits and entitlements the contractor is entitled to as a result (eg statutory sick leave, statutory maternity pay etc). The government should also change the law to specify that anyone paying tax as an employee has automatic worker status under employment law (as recommended by the Taylor Review). Employers could then be required to issue contractors with tax determination documents that set out all their rights under both national insurance and employment law.

Going further, the government should evaluate the impact of HMRC’s enforcement reforms (including any unintended consequences) and consider further long-term options for removing incentives that currently encourage less secure non-employee work. Proposals must recognise the need to address sharp practice while respecting the requirements of the genuinely self-employed. Possible reforms might include fully aligning the definitions of self-employment in tax and employment law; or exploring longer-term reforms to income tax and national insurance.

25. Reform privacy legislation and codes of practice to restrict automated decision-making and workplace monitoring (UK)

We recommend that the UK government consults on amending data protection legislation to give greater protection to workers in the context of automated decision-making and workplace monitoring. The Information Commissioner could also be tasked with publishing tougher, clearer codes of practice which the courts would be required to refer to in interpreting the law. This initiative should be linked to our proposed review of equality law (recommendation 12).

Key areas to consider in a review of data protection law include:

- **Monitoring:** The law could be revised to place greater limits on monitoring and surveillance practices. Acceptable boundaries on surveillance might be defined and agreed by social partners at national level (including the TUC and the CBI) to inform new legal principles for workplace monitoring. The law could also require that worker representatives or trade unions are consulted when an employer wants to introduce a new form of technological surveillance to enable continuous, dynamic responses at the firm level to developments in monitoring technology.
- **Automated decisions:** Under existing law people have the right not to be subject to important employment decisions made only by an automated process. However, this provision does not appear to be curtailing practices such as fully automated recruitment sifting and in practice few people are exercising their right for a human to be involved in decisions. A full review of the role of automated decisions in recruitment is needed. As a minimum there should be a requirement for a highly visible means of actively choosing whether people wish to be the subject of automated decision-making (not just a tick-box opt-out). A proper system of transparency and safeguards is necessary to prevent automated recruitment decisions building in discrimination or unfairness.
- **Consent:** A revision to the law and codes of practice might also present an opportunity to clarify that employers cannot use consent as the basis for processing personal data relating to workers or job applicants (because there is an unequal power relationship). Without such consent workers' personal data can only be used after carefully weighing the interests of both employer and worker. This change would mean that consent could not be used to bypass other restrictions on monitoring or on automated decision-making. ■

CASE STUDY: ZURICH

Zurich is a large insurance company with offices across the UK. It is working in partnership with unions and other stakeholders to shape and manage the impact of technology on the future of work.

Within Zurich, automation is advancing at pace. The company has implemented robotics to automate around 117 processes across its UK business, up from just 40 in February 2019. The company now has 55 robotics licences – each the equivalent of an employee working 24 hours a day, 7 days a week. Implementing this automation has freed up employees to focus on other tasks, providing opportunities to upskill while delivering better service to customers.

Employees have been recruited internally to take on new roles developing and running robotics processes. This includes

the members of Zurich's 28-strong continuous improvement and automation team. The team recruits internally, seeking colleagues with potential who are keen to develop. They are then trained in-house to use specialised software. Subject matter experts from within the business bring expertise and knowledge and develop and manage robotics processes having had experience of the tasks that are being automated.

Zurich and Community union have worked together on these issues, including a proposed campaign to help employees recognise the value and transferable nature of their skills, as well as raising awareness about the types of skills that will be required for the future. This is part of Zurich's commitment to developing and upskilling its people for new roles, which aligns with its approach and commitment to workforce sustainability.

An example of this principle in practice was the reskilling of 50 claims handlers to become underwriters in Leeds.

Zurich has invested in extensive research which has allowed the business to plan for the future of their workforce. The study is a deep dive into reskilling opportunities and career transition paths which allows employees to move into fast-growing areas which hold greater opportunities.

The research has also informed initiatives such as Zurich's recently launched data academy. This is a first for the financial services sector, where successful apprentices will complete a data analyst apprenticeship or data science degree. These are just some of the steps being taken by the company to build its own pipeline of talent while equipping people with the skills needed for the future.

Chapter five: Making workers' voices heard

WE WANT TO see technology-powered work shaped by people in the workplace. That means creating a labour market where workforce power and representation improves business practices and public policy; where people share in the rewards from new technology; and where employees, employers and government act in genuine social partnership to determine how jobs change in response to new technology.

Throughout this report, many of the problems we have identified reflect the lack of involvement workers have in decisions about work and new technology: people not getting a fair share, poor innovation and low productivity, inadequate training, and technology implemented in a way that makes jobs worse not better. We have seen evidence that insufficient workforce participation and representation is a serious problem that undermines the ability of the UK's economy and society to benefit fully from the take-up of new technology and share the rewards fairly and widely.

This chapter therefore explores the level of worker involvement in technology decisions and innovation and the impact that has on organisations and also the role of workforce representatives and trade unions in shaping broader decisions beyond individual firms. Employers need to be able to draw upon the innovation, ideas and views

of their workforce if they are to get new technology right, and if they are to introduce changes that boost productivity smoothly and with consensus. Similarly, across the economy, the government needs to be able to work with both businesses and unions in partnership to respond to today's difficult and unpredictable economic circumstances with swift and effective measures.

We want to see collaborative and flexible approaches to negotiation

During the Covid-19 recession, it is more important than ever to include workers' voices in business decisions and in the discussions that shape vital economic policy. At a time when there is very significant disruption in the labour market, when many jobs are being lost and even more are changing rapidly, the view from working people is immensely important. This is particularly true when it comes to the adoption of new technologies, which are at the heart of many of these changes and are, in different contexts, both saving jobs and replacing them.

We are not calling for a return to the industrial relations practices of the 1960s and 1970s but for a modern approach to work-

place partnership that reflects the sheer pace and scale of the employment changes likely to take place as a result of new technology. Continual engagement between employers, workforce representatives and government will be vitally important to support working people, prevent rising inequality, enable smooth transitions and deliver the best possible results for the economy. We want to see collaborative and flexible approaches to dialogue and negotiation that work in a context of rapid change, and that are right for small businesses and self-employed contractors as well as large workplaces. Our support for a greater role for trade unions and modern social partnership is in keeping with initiatives from progressive political forces overseas including the incoming Biden-Harris administration in the United States and Jacinda Ardern's Labour government in New Zealand.

Reasons to be optimistic: Better voice and representation for working people on new technology could lead to positive rewards for everyone. Representation and consultation at work are valued by workers themselves, but worker voice has also been shown to be highly effective at improving other aspects of working life and business performance: it can help management make better decisions, improve workers' commitment, increase employee retention,

and can even help enable more innovation. These outcomes contribute to higher business productivity, which leads to growth that is essential for the health of the economy and living standards. We have also seen successful examples of social partnership operating at national and local level during the Covid-19 crisis and before.

Reasons to be worried: Without the meaningful involvement of workers, we will not realise the full potential benefits of new technologies. But most working people are getting little say about technology change at work – trade union membership and collective bargaining agreements have been decline for decades, and especially in those industries highly susceptible to automation. These low levels of representation are a major concern when workers are facing the extraordinary challenges of the Covid-19 crisis combined with ongoing workplace change enabled by new technologies.

Our findings

Workforce consultation and representation improves work and productivity

Consultation, representation, and voice at work are widely considered by workers to be valuable in themselves (see box on page 43 on the dimensions of good work). But worker voice has also been shown to be highly effective at improving other aspects of working life and business performance.

Workplaces where there is negotiation on pay and conditions tend to have a ‘union wage premium’, with workers receiving higher pay than in non-unionised organisations. There is also evidence that workers represented by trade unions see better quality of work in other ways too. They tend to get more annual leave; work fewer hours of unpaid overtime; have access to more generous benefits like sick pay and family leave; and experience less job-related anxiety due to changes in the workplace.¹³⁰ Voice and representation can therefore be essential tools in translating the gains from new technology into improved pay and conditions for workers.

And there are significant advantages for employers too: worker insight from the front line can help management make better decisions, as several of our case studies show; involving the workforce enables employers to draw on a wider range of ideas

and innovations and make better decisions on which technology to invest in; representation can help to improve workers’ performance and commitment and it can prevent the loss of knowledge and skills by increasing worker retention.¹³¹ Recent research also suggests that workplaces with collective bargaining tend to see more innovation in terms of a company’s products, and there are indications that bargaining is also positively associated with the introduction of new technology into the workplace itself.¹³²

All of these outcomes in turn contribute to higher business productivity – and, indeed, there is evidence that trade union presence is good for productivity (see ‘unions, bargaining and productivity’ box on page 26). As we have seen, high productivity growth is essential for the health of the economy and for living standards.

Most workers currently have little say about new workplace technology

In 2019 we surveyed workers whose jobs had been impacted by the introduction of technology in the last five years; almost two-thirds (65 per cent) said they had not been consulted the last time technology had been introduced. We also conducted four focus groups with people in sectors and occupations identified to be at risk of signif-

icant levels of job automation, and commissioners heard about poor experiences of consultation and engagement.

Others reported having non-disclosure agreements included within their contracts

A retail worker told us that “if they want to implement new technology, those that are on the shop floor will know better if that’s going to work or not than the person sat up in the office ... but they don’t let you talk”. Others reported having non-disclosure agreements included within their contracts, which prevented them from speaking about changes at work either to colleagues or to anyone outside the organisation. A distribution worker, describing restructuring at his workplace, told us that “sometimes you’re involved and other times they just move you around like chess pieces, so you’ve got no say: ‘just do it, it’s your job’”. Finally, a bar supervisor said that his employers “won’t really take anything on board” and that “it’s really hard to get your voice heard”.

CASE STUDY: DEBBIE

Debbie is a member of Community union who has worked in the high-street betting sector for more than 30 years. Her company has not recognised Community or any other union. She says that new technology, like self-service betting terminals and online gambling, has been implemented in a top-down manner, without consulting workers.

She worries about the health and safety risks linked to the introduction of new self-service betting terminals. Although staff were given training in using them, they were not consulted on how the machines should be brought into the shops or how staff would work alongside them. Workers in betting shops regularly face violence and aggression from customers and Debbie worries that working on the shop floor rather than behind a counter increases these risks. Debbie says: “Staff are asked to be on the shop floor to monitor the terminals, like you would self-service supermarket check-outs, but that means we’re on the shop floor more than previously. It feels like more of a risk factor.”

Debbie is also required to sign punters up to online betting, which has reduced the number of people using her shop, as some customers are choosing to make bets online rather than in store. This has affected her take-home pay as there are targets to meet for business done instore. Debbie says: “I feel my skillset hasn’t changed. In fact, I’ve developed through taking additional training courses. But I’ve had, in effect, two consecutive pay cuts because I haven’t reached my targets.” She says that workers were not consulted on the effect of instore promotion of online gambling on business in the shops or their own remuneration.

The quality of engagement between employees and managers can also be compromised by new technology. A 2017 report from Acas suggests that new technology can itself allow managers to sidestep having challenging conversations with individuals about automation and other kinds of change.¹³³ Long before the Covid-19 crisis, focus group participants told us that managers FaceTiming into meetings or holding conference calls instead of in-person visits reduced genuine opportunities for the expression of worker voice.

Even when workers or their representatives are involved, this often comes too late. International Labour Organization guidelines say that consultation should begin in earnest prior to technology-induced redundancies being implemented;¹³⁴ however too often trade unions and other representatives are consulted only once major changes have been decided upon.¹³⁵ Naomi Pohl, deputy general secretary of the Musicians' Union, told us that, while the union often succeeds in negotiating better terms for its members in response to new technology, fundamentally workers do not have

a real choice over whether to proceed with its introduction or how it is used: "I mean at the end of the day our members can't say no, really. It's very rare that we're able to actually say no."

Workers are far less likely to be represented than was once the case

Trade unions and collective bargaining are the traditional vehicles through which people can effectively express their voice at work. But the proportion of people in work who are trade union members has been falling for decades – from more than 52 per cent of workers in 1979 to 21 per cent in 2019.¹³⁶ There are signs that this downward trend may have come to a halt very recently. The proportion of people in work who were union members was the same in 2019 as in 2016 and there is evidence that union membership has increased in 2020 in response to Covid-19.¹³⁷

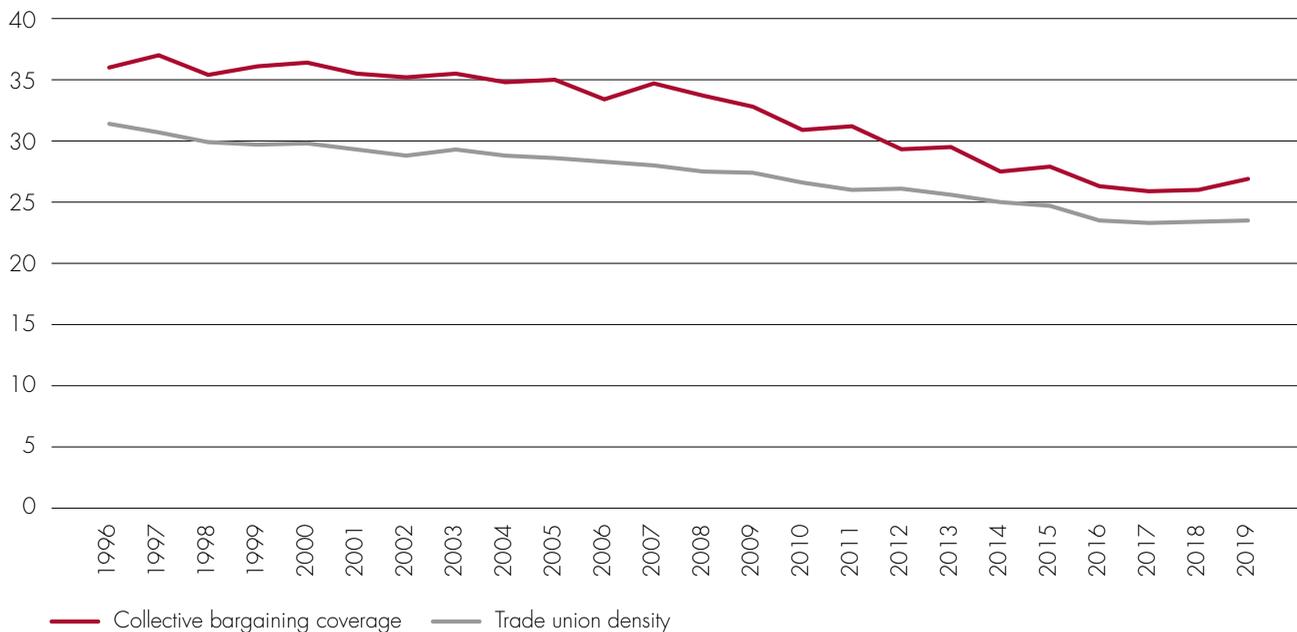
However these positive contemporary shifts do not change the underlying picture: there is a long-term structural problem as people have become less likely to join trade unions – particularly in workplaces that are

smaller or have higher employee turnover – and the ability of unions to represent workers across the economy has declined. Low levels of representation are a major concern when people are facing the extraordinary challenges of the Covid-19 crisis combined with ongoing workplace change enabled by new technologies.

Similarly, collective bargaining coverage has declined. In the mid-1980s, around two-thirds of employees were covered by collective bargaining agreements; today only 27 per cent say they are (although employer surveys suggest people may under-report the use of collective bargaining in their workplace).¹³⁸ These trends have been mirrored in other English-speaking countries but have not been seen in most western European economies. Figure 10 highlights the decline in both union density and collective bargaining over the last two decades. This shows that, as union density has fallen, so have unions' capacity to act as a voice for workers beyond their membership.

When it comes to government decision-making, workers are also less represented than they are in other countries where

Figure 10: Trade union density and collective bargaining coverage are in decline



Trade union density and collective bargaining coverage (UK employees), per cent, 1996–2019. Source: Department for Business, Energy and Industrial Strategy, 2020

social partnership remains the norm at local, regional and national levels. The difference is most notable with respect to Germany – a country with an economy that is far more productive and inclusive than the UK’s. By contrast, the UK doesn’t generally make economic decisions through social partnership. At a local level, local enterprise partnerships are firmly business-led, although some choose to involve unions; and nationally there are now very few forums where worker representatives are present in any number (the Low Pay Commission is an important exception).

Worker voices are totally excluded from other forums relating to industrial strategy and technology change. The trade union Prospect highlighted to us how worker participation in industrial strategy ‘sector deals’ and in the sector councils that oversee them is largely absent – including in the vital AI sector deal. Similarly, worker representatives do not feature as stakeholders on government bodies set up to guide the development of AI such as the Centre for Data Ethics and Innovation.¹³⁹

Low representation is most acute where technology is making work more precarious

Industries with a high proportion of jobs susceptible to automation tend to have especially low rates of trade union membership – meaning even less opportunity for workers to have a meaningful voice in workplace decision making. Figure 11 below shows that all vulnerable sectors apart from ‘transportation and storage’ had lower trade union densities than the average rate across the economy. The picture is particularly grave for the hospitality sector: accommodation and food services had a union density of just 2.3 per cent in 2019. This is also the sector worst hit by the Covid-19 crisis.

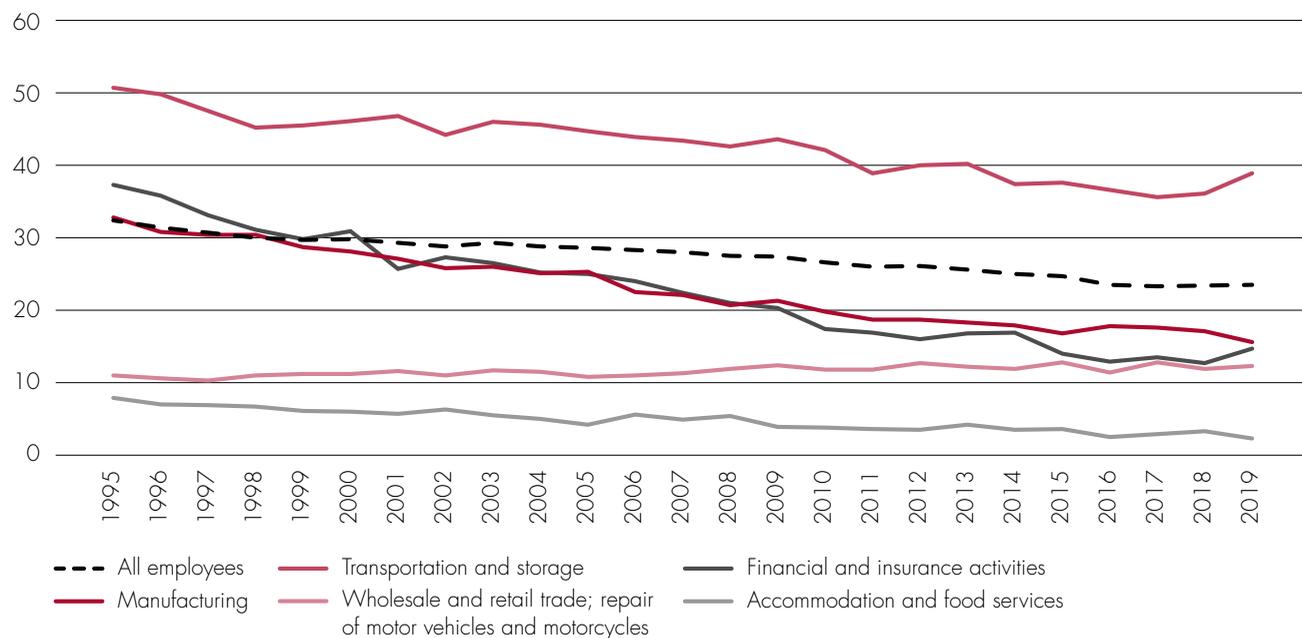
James Bloodworth, author of *Hired*, told us he believes that in some sectors there is outright hostility to the notion that trade unions should be giving workers a voice. At the Amazon warehouse where Bloodworth worked, union officials trying to recruit were “being chased out of the car park by security”.

We also found that people in precarious work, who are most vulnerable to technology change, are less likely to be represented by trade unions.¹⁴⁰ Only around 7 per cent of self-employed workers are trade union members, compared with 23.5 per cent of employees.¹⁴¹ And trade union density among employees with temporary contracts is only 15 per cent, while for permanent employees it is 24 per cent.¹⁴²

Atypical work and self-employment are increasingly bound up with new technology – not least in the form of platform work. Aileen Koerfer, director of digitalisation at UNI Europa, told us that a significant part of the challenge is that many of the firms engaging workers via platforms do not consider themselves employers – and are often not legally considered as employers either. As a result, there is less of a clear incentive for workers to join a trade union – a union cannot be recognised by a firm if the firm is not technically an employer, and it is therefore more difficult for unions to negotiate on behalf of individuals.

Employees in small organisations are also far less likely to be unionised. Those who

Figure 11: Industries susceptible to automation tend to have low rates of trade union membership



Trade union density in industries vulnerable to job automation (UK employees), per cent, 1995–2019. Source: Department for Business, Energy and Industrial Strategy, 2020

work in small organisations – with fewer than 50 employees – are less than half as likely to be union members compared with their counterparts working at firms with 50 or more employees.¹⁴³ In one of our focus groups, a worker told us: “A lot of small companies got rid of unions, didn’t they? Years ago. Because they caused too much hassle and they weren’t able to do with the workers what they wanted to do. I think when you’re in a big business, the union is not a bad idea. But a smaller one, you’ve probably got not much chance of getting a union, have you?”

Small but successful steps have recently been taken towards stronger social partnership

Although the UK has a history of weak social partnership in recent decades and particularly in the last 10 years, most recently there have been some new and successful examples of social partnership working at national, local and firm level.

At firm level we found some strong and successful examples of employee consultation and partnership working – we heard how workers have been consulted effectively, via trade unions and other means, on the introduction of new technology. At the Siemens plant in Congleton, employees are utilising new technology itself to co-design novel parts of their jobs – in the form of the ‘virtual reality cave’. And at the Asda distribution centre in Normanton, the strong employer-union relationship provided a foundation for dialogue on new technology and has proved beneficial for both parties (see case study boxes on pages 42 and 30). Meanwhile at national level, the CBI and TUC continue to work directly and effectively together on issues ranging from the Covid-19 crisis to Brexit implementation to training – lobbying government, drawing up joint proposals for ministers and providing advice for employers.

The government itself has previously been resistant to social partnership, but it has recently made some modest moves to support dialogue between workers and employers. In 2020 ministers introduced revised regulations on the information and consultation of employees (ICE). Since 2005, ICE regulations have required employers with 50 or more employees to respond to requests from employees to establish formal consultation arrangements. Until recently a new consultative body could only be set up if the employer wanted one, or if 10 per cent of the

workforce requested it. As a result only seven per cent of workplaces had a consultative committee in 2011.¹⁴⁴ The government-commissioned Taylor Review of modern working practices recommended that the threshold should be reduced to 2 per cent of the workforce and the government implemented this proposal in April.¹⁴⁵

Small changes to corporate governance rules have also been made to promote worker representation. In 2016 Theresa May proposed, as part of her Conservative party leadership campaign, that large firms should have an employee representative on their board of directors.¹⁴⁶ This commitment was then heavily diluted but eventually the law was changed to require that listed companies nominate a director from the workforce, create a formal employee advisory council, assign responsibility for employee representation to a designated non-executive director – or present a written justification if they chose not to take any of these three actions. A recent survey by the Local Authority Pension Fund Forum found that almost one in five firms had chosen to take none of the three actions. Only two out of 40 companies responding to the survey had chosen to include an employee director on the board.¹⁴⁷

The Industrial Strategy Council, launched in 2018, is also a significant recent development. The council advises ministers on progress towards meeting industrial strategy goals and has a key role in supporting government improve the application of technology across the economy. It has already made valuable contributions in evaluating the challenges faced by the government and scrutinising its progress in meeting them. One out of the 18 members is a trade union representative, sitting alongside people from business, academia, public bodies and civil society organisations. While one voice is clearly better than none, this level of workforce representation is insufficient for the council to be considered a social partnership organisation.

In 2017 ministers established the National Retraining Scheme as a social partnership initiative, guided by representatives from the TUC and CBI. The government, employers and unions jointly designed the scheme’s pilot initiatives, presenting an important template for future skills policy (sadly in Autumn 2020 the scheme was absorbed into the National Skills Fund which is without similar social partnership arrangements).

We have seen close partnership working between employers and unions in particular sectors – for example in the automotive industry – as they engage with government over post-Brexit trade arrangements.

Most notably of all, ministers have involved unions in key decisions on locking down and reopening the UK economy in response to Covid-19 – and the measures were stronger and more effective as a result. The coronavirus job retention scheme that furloughed more than 9 million jobs during lockdown and beyond was the result of joint lobbying by the CBI and TUC who were both involved with the Treasury in the design of the scheme.¹⁴⁸ Unions and employers were also consulted in developing the July 2020 summer jobs plan and in discussions on safely reopening workplaces and the heads of the CBI and TUC successfully lobbied together first for the replacement of the furlough in early autumn and then for its extension, once the second wave of infection took hold.

Although all these examples fall far short of the social partnership approach we consider in our recommendations, they are welcome first steps that can be built on as technology change continues to unfold.

Recommendations

The initial economic policy response to the Covid-19 crisis, which involved cooperation between government, employer organisations and trade unions, demonstrated the value of worker voice at national level. Within workplaces and sectors, action is also needed to enable meaningful consultation and influence over technology change.

More dialogue will also benefit employers. The UK will innovate and adopt technology more quickly and more fairly if workers have a stronger voice in the way technology is used and the way rewards are distributed. We have seen significant evidence that a stronger social partnership approach will help improve productivity, growth, social justice and social cohesion. It requires new approaches from government, employers, unions and individuals.

26. Employers should embrace a new culture of workplace partnership and involve workers and trade unions in technology-related decisions (UK)

Across the economy we need to see a major culture change so that workforces are rou-

tinely involved in developing ideas and making decisions on new technology. Employers are not making the most of the skills, talent and knowledge of their people – many of whom have qualifications and skills that stretch well beyond their formal job roles. We heard examples of best practice where employers actively encouraged staff to put forward suggestions and ideas as well as consulting them on the best technology approaches. But we also heard examples of bad practice where employers neither consulted nor listened and invested in technology that proved ineffective or made work harder.

Culture change among employers large and small should be led by organisations such as the CBI, chambers of commerce and the Federation of Small Businesses, and supported nationally by Acas and the Industrial Strategy Council; and locally by local enterprise partnerships and growth hubs. Union engagement with members and employers should promote continual dialogue on technology and skills. And the government should also use its public procurement role and its engagement with different sectors to promote workplace consultation on technology.

Employers and unions can work together in new ways even in the absence of fresh public policy. However, the recommendations across this report provide an institutional underpinning to drive forward changes to culture and practice. The sectoral initiatives we call for on industrial strategy (chapter one and two), skills (chapter three) and good work (chapter four) should all promote worker consultation and involvement at firm level as well as sector level, and that should be a condition of any public funding in support.

In addition, when the government is discussing tailored support for individual sectors and companies to cope with the disruption caused by Covid-19 and longer-term industrial and technology changes, it should include requirements on workforce consultation, representation and good employment practice, including encouraging union recognition and negotiation over technology.

27. Trade unions should redouble their efforts to support vulnerable workers and demonstrate the benefits of strong social partnership (UK)

The Covid-19 crisis reaffirms the importance of trade unions and collective bar-

gaining, especially for workers in the low-paid service sectors most affected by the pandemic. Today trade unions face considerable constraints in their ability to recruit, organise and represent people in insecure work or at risk of technology change. Hostile regulation and the nature of work in low-paying industries create real barriers to wide-ranging, cost-effective organising. But to serve their mission unions must redouble their efforts, working together as well as individually when appropriate.

There are lots of examples of good practice. The TUC has led pioneering work on a new union offer for young people, including its WorkSmart initiative. Examples of effective union organising of self-employed workers have been highlighted in Fabian Society research.¹⁴⁹ And Unions 21 and RSA reports have showcased good practice in low-paid sectors and proposed new models of working.¹⁵⁰

Recent initiatives may have helped contribute to what appears to be an end to the years of decline in trade union membership. But they are not yet leading to a significant increase in union participation. As a movement, unions need to draw on all the fragmented good practice that already exists and take it to scale.

Unions also need to do more to practice and promote the role they play as social partners, working together with employers to support businesses and sectors to succeed. During the Covid-19 crisis, the TUC has demonstrated these behaviours at national level, working alongside the CBI and government to develop emergency support that works for workers and businesses. Individual trade unions have been negotiating to save jobs in hard-hit sectors too, with, for example, the pilots' union BALPA agreeing a deal with BA to reduce planned redundancies from over 1,200 to under 300.¹⁵¹ And unions including Community and Unison have been operating support funds for members struggling financially as a result of the pandemic. The union movement also needs to get better at talking about these examples.

In the absence of central government initiatives, trade unions should also demonstrate to employers and local leaders that they bring solutions to shared problems, in order to gain more access to economic partnerships at local, regional and sectoral level. These positive examples will then help make the case for national policy and legis-

lative change in the future, to institutionalise social partnership working at every level.

Unions' efforts to reach out to under-represented workers and demonstrate solutions-focused partnership working should be mutually reinforcing. In the modern world of work unions will prosper when they can show to prospective members that standing up for workers and helping employers to succeed are two sides of the same coin.

28. Transform national, sectoral and regional economic leadership bodies into social partnership institutions (England/UK)

Across this report we have referred to the need for workers and their representatives to play a stronger part in economic decisions above the level of the firm.

Stronger consultation and partnership matters at national level. The pace of technology change means that a laissez-faire approach won't work – it will not deliver the productivity improvements the economy needs or manage economic transition and dislocation; or prevent widening inequality and serious problems for low-skilled workers and disadvantaged communities.

For our country to be able to secure the benefits and manage the challenges of fast-changing technology, government needs to work in partnership. We want to see key economic institutions transformed into modern tripartite social partnership bodies bringing together government, employers and workers – and taking account of the changing labour market, so including voices for small businesses and the self-employed.

We recommend that the UK should create institutions bringing together the social partners to collectively make decisions about the economy, technology, skills and the labour market. It would require government, employers and trade unions to operate together in a different way with a commitment to making partnership successful. That means drawing on approaches from across the world, including other advanced economies in Europe. This social dialogue would give workers a seat at the table when big, strategic choices are being made on technology and the future of work.

The response to Covid-19 has been a clear and welcome demonstration of the value of social partnership approaches. In some cases, trade unions, employers and local leaders can put them into practice for themselves and trade unions should

approach existing bodies to explore becoming members. But government leadership is also needed.

Specifically we propose that:

- **The Industrial Strategy Council** should expand on its promising beginnings to become an independent tripartite social partnership institution. It should build on its current business-focused membership to include a balance of trade union representatives, businesses, government, regional representatives and other expert stakeholders. Over time, the council could evolve into a well-resourced autonomous body with responsibility for advising government on economic issues (along the lines of Australia's productivity commission) but also for negotiating industrial and labour market policy reforms between partners (like the social and economic council of the Netherlands).
- **The National Skills Fund** announced by the chancellor in the 2020 budget should be established as a semi-autonomous social partnership institution, rolling forward the model of the National Retraining Scheme which was overseen by representatives from the TUC and CBI. The fund should sit within or take over responsibilities from the Education and Skills Funding Agency with respect to further education, technical education, apprenticeships, adult learning and careers advice. As the fund would be responsible for public money it would report to ministers and would be required to implement government policy. However in all its work it would be expected to visibly demonstrate dialogue and consensus building between the different interests represented.
- **Sectoral social partnership bodies** should be established across the economy, by recognising new or existing sectoral bodies. One attractive option is to re-purpose the sector councils promoted in recent years by the government to lead on industrial strategy for each sector and deliver sector deals. At present there is a marked absence of worker representation in these institutions. They could be transformed into social partnership bodies by including a diverse range of trade union representatives, employers, gov-

ernment and local, regional and civil society stakeholders. Ministers should explore the case for light-touch legislation setting out the minimum requirements and responsibilities of these bodies.

- **Local enterprise partnerships (LEPs)** should be transformed into local social partnerships, with proper worker representation, as well as direct accountability to elected politicians where this is not yet established. This change would bring together local skills providers, workers via trade unions, local businesses, voluntary and community enterprises, and elected local leaders. The reformed LEPs could lead on local industrial strategies, skills delivery and labour market issues including local good work standards (see recommendations 10, 11, 19 and 21).

29. Technology and skills should become part of collective bargaining at firm and sector level (UK)

We recommend that employers and trade unions come together to roll out a significant extension of collective bargaining on issues relating to technology change and skills. Our research has shown that there is strong common ground to be found between trade unions and employers when it comes to technology change – from employees and management successfully smoothing transition in individual workplaces, to the heads of the TUC and the CBI firmly agreeing that change must work for workers.¹⁵² There is much that social partners

can do on a voluntary basis to expand consultation and negotiation on these issues.

Workplace level: Recognised trade unions should seek agreements with employers, establishing the terms on which they will bargain on the future implementation of new technology and on skills and training. One way to achieve this is through 'new technology agreements' that set out in detail the ways employees will be involved in co-determining how new technology is introduced and how it will affect pay, conditions, monitoring, job design and issues such as redeployment and training. Unite has developed a model agreement which provides one example of how this can be done and unions will want to establish arrangements that are specific to each workplace.¹⁵³

Unions should always seek to make sure that negotiation on new technology includes support for workers to improve their digital skills in a broad sense, rather than simply learn how to use a piece of technology in a particular way. More generally, we want to see unions and employers negotiate on support and skills for workers in all contexts. In addition to the core pay and conditions issues on which recognised unions always negotiate, training and career support should be at the heart of workplace bargaining. Playing a larger role in shaping the implementation of technology will be an important step in boosting the appeal of unions to workers: our 2018 survey found that of employees who said there was a union presence in their workplace, only 16 per cent agreed that unions were taking steps to help ensure

BRITISH STEEL: UNIONS BARGAINING ON TECHNOLOGY CHANGE

The Special Profiles business unit is part of British Steel, based at a mill in Skinningrove and a distribution centre in Darlington. In November 2017, the business decided to automate parts of its production to reduce costs and increase product competitiveness.

The company worked closely with the trade unions Community, Unite and SIMA to conduct a detailed review of proposed changes and the cost savings they would entail. The manner of implementation was then negotiated, and it was agreed that no employee should leave their role until the automated processes in their area of production had been successfully introduced. Unions and the company jointly determined whether automation had increased efficiency and saved costs as expected – with all parties committing to ensuring the business remained competitive.

Under the agreement, workers who did leave the plant were able to transfer to the nearby Teesside beam mill, where new roles were available. As a result, the only redundancies made were voluntary. Workers were also given the opportunity to retrain to fill retiring workers' job roles using a system known as 'skills match'.

Any workers who left the plant, including transfers to the Teesside beam mill, were also able to meet with Community Learn (then known as Communitas) to identify their training needs.



new technologies improve their working life, compared to 38 per cent who disagreed.

To underpin this voluntary shift in emphasis, the formal process for recognising a union should include provision for the union to apply to negotiate on technology change, training and development, and the organisation of work. At present statutory bargaining rights are restricted to pay, hours and holiday (recognised unions have a right to be consulted on training but not to negotiate).¹⁵⁴

Sector level: Sectoral social partnership bodies (see recommendation 28) should seek to negotiate sector-wide agreements on training and skills and the implementation of new technology. At sector level, recognised social partnership bodies should also be tasked with developing sector-wide standards on involving workers in technology change and on skills and training.

30. Extend worker consultation across the economy and introduce worker directors for large firms (UK)

We recommend that worker consultation is extended across the economy in every workplace and that worker directors become the new norm on the boards of large companies.

Worker consultation: We recommend arrangements for workforce consultation should become normal in all workplaces, with formal consultative arrangements becoming compulsory in larger workplaces and easily triggered by employees in

small firms too. The information and consultation of employees (ICE) regulations currently require formal consultation arrangements in workplaces with more than 50 staff if they are requested by 2 per cent of workers (or 15 workers if this number is higher), having just changed in April from 10 per cent of workers as a result of the Taylor review. We recommend going further so that formal workplace consultation mechanisms are a requirement in all organisations where there are more than 100 employees, with those consultation arrangements explicitly to include technology and training. Currently, the ‘standard provisions’ of the ICE regulations (the fallback list, if employers and employees cannot agree on areas for discussion between themselves) does not cover either topic explicitly.¹⁵⁵ This list should also include pay and conditions so that workers are at least consulted collectively on pay, even if they are not able to formally negotiate (see recommendation 7).

We also want to see workforce consultation arrangements in smaller workplaces and believe these should be required when requested by workers. For workplaces with 50 to 99 employees current ICE regulations for triggering consultation arrangements should continue (perhaps with a reduction in the number of workers who need to request consultation, below the current level of 15). With respect to firms with fewer than 50 employees, the government should seek to build consensus between trade un-

ions and employer organisations (such as the FSB and chambers of commerce) on the form of workplace consultation arrangements that would work most effectively.

Workers on boards: Workers in large businesses should be granted rights to elect employee directors to their company’s board and remuneration committees. This would give people facing technology change a real voice in their organisation’s governance and strategy; currently, as our 2019 survey shows, most employees feel that they do not have a chance to influence how new technology is used in their workplace. The evidence suggests that worker representation on boards would benefit employers, employees, and the wider public too.¹⁵⁶ The government should consult on models of board representation for firms of different sizes and characteristics – and reach agreement through negotiations with unions and business.¹⁵⁷

31. Remove barriers to trade union recognition and organisation (UK)

We recommend that barriers to trade union organising and recognition are greatly reduced, in order to support all our other social partnership proposals. We have made recommendations to expand workers’ power and voice in every workplace (irrespective of whether there is a recognised trade union) but trade unions offer by far the most effective mechanism for representation at work.

We want to see a package of reforms that spreads union participation across the econ-



Commissioners visiting an Asda warehouse in Normanton

my, with a focus on increasing representation in lower-paid and more insecure work, and among the self-employed. In a report about technology, we particularly want to stress the importance of bringing trade union law into the modern age by permitting all paper-based processes to take place electronically.

The government should consider the following proposals:

- Update all trade union law to facilitate use of electronic communications – i.e. to permit electronic balloting on proposals for compulsory recognition and industrial action; to require employers to facilitate email communications during recognition procedures.
- Enhance unions’ rights of physical and digital access to workers in workplaces where they are not recognised, both to support existing members and to organise.
- Relax rules on statutory recognition procedures. Options include: reducing the required level of union membership needed to initiate a request for compulsory recognition; permitting unions to seek compulsory recognition more frequently; and extending compulsory recognition procedures to smaller businesses (eg a minimum of 10 employees rather than 21).
- Require employers to provide information about joining trade unions in the information they provide new recruits and to all workers (without promoting specific unions unless there is a recognition agreement). ■

WORKPLACE REPRESENTATION AND CONSULTATION RIGHTS IN OTHER COUNTRIES

Austria

Works councils are the key form of worker representation in Austria. They can be established in workplaces with a headcount as low as five – and have extensive information and consultation rights, as well as effective veto powers on some issues (including the introduction of new monitoring and surveillance systems).¹⁵⁸

Estonia

In 2007, legislation came into force allowing for the election of ‘employee representatives’ with significant powers – including a right to conduct collective bargaining if there is no recognised trade union in the workplace, and rights to information and consultation. Employee representatives are now more prevalent than trade union representatives.¹⁵⁹

Germany

Worker representation is provided by works councils in Germany. All private companies with more than five employees can establish one and, while they are not formally trade union bodies, union members dominate in works council elections. Works councils must be consulted about workplace changes with potential negative implications for staff, including the introduction of new technology. There are a range of areas where the works council must agree before a change goes ahead, such as on the introduction of cameras to monitor workers.¹⁶⁰

Spain

Works councils constitute the key mechanism for representation in Spanish workplaces. Workplaces with more than 10 staff are entitled to elect representatives. While works councils have a range of information and consultation rights – including on workforce restructuring – they have no veto powers. They can also negotiate collective bargaining agreements on pay and conditions.¹⁶¹

Sweden

The local trade union provides workplace representation in Sweden – there is no need for separate works council-style structures owing to the country’s high union density. Legislation requires employers to consult union representatives on ‘significant changes in employment or working conditions’ – including changes in work organisation and methods. These rights kick in when there is a single union member employed at the company.¹⁶²

The commissioners



**Yvette Cooper MP,
chair of the commission**

Yvette is the Labour Member of Parliament for Normanton, Pontefract and Castleford and has represented the constituency at Westminster since 1997. She served in the Cabinet between 2008–2010 as Chief Secretary to the Treasury and Secretary of State for Work and Pensions. Yvette has also represented the official opposition as Shadow Foreign Secretary and Shadow Home Secretary, chaired the Labour Party's Refugee Taskforce and is now chair of the Home Affairs Select Committee. Yvette has long campaigned on the issues of support for working parents and tackling child poverty.



Hasan Bakhshi, director, Creative Industries Policy and Evidence Centre (PEC); and executive director, creative economy and data analytics, Nesta

Hasan leads Nesta's creative and digital economy research programme and is a recognised authority in the field. His work includes co-authoring the Next Gen skills review of the video games and visual effects industries, which led to wholesale reforms of the school ICT and computing curriculum in England, and The Future of Skills which analyses what global trends will mean for the workforce skills mix in the future. He is also an adjunct professor at the Queensland University of Technology.



Sue Ferns, senior deputy general secretary, Prospect

Sue is Senior Deputy General Secretary of Prospect. Sue's responsibilities in Prospect include leading the union's work on the energy sector, engineering and sustainability. Sue has been a member of the TUC General Council since 2005, Deputy Chair of the Women's Committee and a TUC Aid trustee. She has been an active member of the Trade Union Sustainable Development Advisory Committee since its inception, and is the General Council's lead on environment and sustainability. She is also a trustee of the Science Council and Chair of Unions 21.



Paul Nowak, deputy general secretary, Trades Union Congress

Paul has been TUC deputy general secretary since 2016. He previously held roles and was an activist in CWU, GMB, Unison, and BIFU. He introduced the TUC's Leading Change programme.



**Katie O'Donovan,
head of public policy, Google UK**

Katie is responsible for Google's engagement with the UK government to ensure Britain remains a world-leading digital economy and Google continues to meet its commitments to responsible innovation. Katie sits on the board

of youth charity Redthread, has been a board member for the Internet Watch Foundation and UKCISS and is a Policy Fellow at Cambridge University. Prior to her time at Google, Katie established the communications and policy team at Mumsnet, and worked in politics, both for prime minister Tony Blair and David Miliband.



**Roy Rickhuss CBE,
general secretary, Community**

Roy is a lifelong trade unionist, first joining one of Community's founding unions in 1979, and has been general secretary of Community since 2013. He represents Community on the TUC General Council and is a member of the Executive Council of the General Federation of Trade Unions. He was invited to join the government's Industrial Strategy Council in 2018, and in the 2019 New Year honours he was awarded a CBE for services to the steel industry. Roy is a member of the Unions 21 Commission on Collective Voice and the Money and Mental Health Commission.



**Margaret Stevens, professor
of economics, University of Oxford**

Margaret is a labour market economist and an expert on vocational and skills policy. She is currently head of the department of economics at the University of Oxford. The main application of her work has been to the economics of vocational training. In particular, Margaret has studied the effects of government policies on training in international contexts. ■

Our surveys of working adults

We conducted two surveys of workers' experiences and attitudes to technology in 2018 and 2019.

2018 survey

The survey was carried out online between 23 and 24 July 2018, with a sample of 1,092 GB adults in paid work. The respondents were drawn from a broader survey of all GB adults weighted to be representative of the adult population. To ensure that respondents were thinking about the impact of technology when answering the survey, they were asked to read the following statement before answering each group of questions: *"The creation of new technologies will gradually change existing job roles, automate some existing tasks in the workplace and create new job roles over the next 10 years (i.e. between now and 2028)."*

1. Optimism about the future: 53 per cent of workers were optimistic about their future working life and job prospects, when thinking about technology change in the next decade. Workers aged under 45 are more optimistic than older workers (18–44s, 60 per cent; 45+ 46 per cent).

Thinking about changes in technology in the workplace over the next 10 years... In general, I am optimistic about my future working life and job prospects.

Strongly agree	Tend to agree	Neither agree nor disagree	Tend to disagree	Strongly disagree	Don't know
11%	42%	25%	15%	6%	1%

2. Impact of technology on my job: Only 29 per cent thought technology would have no effect on their current job over the next 10 years. 44 per cent of workers thought changes in technology will have a positive effect on their current job but 20 per cent of workers (ie 6 million people) think there will be a negative effect.

To what extent, if at all, do you think changes in technology will have a positive effect on your current job, negative effect on your current job or do you think there will be no effect in the next 10 years?

Very positive effect	Fairly positive effect	No effect at all	Fairly negative effect	Very negative effect	Don't know
5%	38%	29%	16%	4%	7%

3. Change for the worse: More people were pessimistic about the impact of technology on their job when we asked a different question. 37 per cent of workers (ie more than 11 million people) were worried about their job changing for the worse, when thinking about the impact of technology in the next decade. Groups who were particularly likely to be worried about their jobs changing for the worse include: 45–54 year-olds (43 per cent); public sector workers (45 per cent); people in the north of England (45 per cent).

Thinking about changes in technology in the workplace over the next 10 years... I am worried about my job changing for the worse.

Strongly agree	Tend to agree	Neither agree nor disagree	Tend to disagree	Strongly disagree	Don't know
11%	25%	25%	25%	13%	1%

4. Jobs disappearing: 23 per cent of workers (ie more than 7 million people) were worried that their job may no longer be needed, when thinking about the impact of technology in the next decade. There is little difference in the percentage worried about their job not being needed, between people in ABC1 and C2DE social groups and between people working in the private and public sectors.

Thinking about changes in technology in the workplace over the next 10 years... I am worried about my current job no longer being needed.

Strongly agree	Tend to agree	Neither agree nor disagree	Tend to disagree	Strongly disagree	Don't know
6%	16%	17%	33%	26%	1%

5. Better quality work: 40 per cent of workers agreed that new technologies will lead to better work in the future, while 24 per cent disagree. Groups more likely to be positive about working conditions and job satisfaction improving included: men (44 per cent) and workers aged 18 to 44 (51 per cent).

In general, new technologies will lead to better working conditions and job satisfaction in the future.

Strongly agree	Tend to agree	Neither agree nor disagree	Tend to disagree	Strongly disagree	Don't know
7%	33%	29%	18%	6%	7%

6. Confidence about adapting: A large majority of workers (73 per cent) were confident they would be able to change and update their skills if new technologies affect their current job. Only 19 per cent of workers (ie 6 million people) are not confident that they'll be able to change. A slightly higher percentage of workers aged over 45 are not confident about being able to change (24 per cent).

How confident, if at all, are you that you'll be able to change and update your skills if new technologies affect your current job?

Very confident	Fairly confident	Not very confident	Not at all confident	Don't know
18%	55%	15%	4%	8%

7. Government action: Only 9 per cent of workers agreed that the government was taking action to help them prepare for the changing world of work resulting from new technologies. 61 per cent of workers disagree.

The UK government is taking steps to help me feel prepared for the changing world of work resulting from new technologies.

Strongly agree	Tend to agree	Neither agree nor disagree	Tend to disagree	Strongly disagree	Don't know
2%	7%	23%	35%	27%	7%

8. Employer action: Only 27 per cent of employees agreed that their employer was taking action to help employees feel prepared for changes in their jobs resulting from new technologies. By contrast 41 per cent disagreed that their employer was taking such action.

My employer is taking steps that help me feel prepared for changes in my job resulting from implementation of new technologies (employees only).

Strongly agree	Tend to agree	Neither agree nor disagree	Tend to disagree	Strongly disagree	Don't know
5%	22%	27%	27%	14%	5%

9. Trade union action: Only 16 per cent of employees agreed that trade unions in their workplace are acting to ensure new technologies improve work. 38 per cent do not agree while a further 21 per cent said they didn't know.

Trade unions in my workplace are taking steps to help ensure that new technologies enhance and improve my working life (employees, excluding those who selected 'not applicable – I do not have trade unions in my workplace').

Strongly agree	Tend to agree	Neither agree nor disagree	Tend to disagree	Strongly disagree	Don't know
3%	13%	26%	19%	19%	21%

2019 survey

The survey was carried out online between 19 and 20 June 2019, with a sample of 1,181 GB workers. The respondents were drawn from a broader survey of all GB adults weighted to be representative of the adult population. To ensure that respondents were thinking about the impact of technology when answering the survey, they were asked to read the following statement before answering the questions: *“For the following question, by “new technologies”, we mean technology that has been introduced to perform certain tasks (e.g. the movement of some services online, new computer software, machines that can perform new types of physical tasks, the usage of tablets and hand-held devices at work etc.).”*

1. Recent impact of technology: 80 per cent of workers said that the introduction of new technologies at their workplace had affected their role to some extent over the last five years. 52 per cent said that new technology had impacted them at least 'a fair amount'.

Thinking about the last 5 years (i.e. since June 2014)... How much of an impact, if any, would you say new technologies that have been introduced at your place of work have had on your current role?

A great deal	A fair amount	Not very much	None at all	Don't know	Not applicable – no new technologies have been introduced at my place of work in the last 5 years
19%	33%	28%	7%	3%	10%

2. Positive or negative change: Of those workers who said that new technologies have had an impact over the last five years, 57 per cent said that it had had a positive impact on their role. Workers in the C2DE social group were less likely to feel the impact had been positive than those in the ABC1 group (50 per cent vs. 60 per cent).

Overall, how positive, or negative would you say this impact has been on your current role?

Very positive	Fairly positive	Neither positive nor negative	Fairly negative	Very negative	Don't know
14%	43%	35%	5%	2%	1%

3. Consultation by employers: Of employees who told us that new technologies had impacted their role, a large majority (65 per cent) said that they had not been consulted the last time new technology was introduced in their workplace. Groups especially unlikely to have been consulted include: women (70 per cent); employees aged 45+ (72 per cent); and those working part time (72 per cent).

Thinking about the most recent time new technologies were introduced at your workplace...Were you consulted (e.g. asked for your opinion etc.) by your employer before the new technology was introduced?

Yes, I was	No, I wasn't	Don't know/can't recall
26%	65%	9%

4. Influence over change: Most employees we asked did not feel that their employer gave them opportunities to influence how new technologies were used. Only 31 per cent agreed that they were afforded such opportunities, while 58 per cent disagreed.

To what extent do you agree or disagree with the following statement? My employer gives me the opportunity to influence how new technology is used in my workplace.

Strongly agree	Tend to agree	Tend to disagree	Strongly disagree	Don't know
9%	22%	29%	30%	10%

5. Training to prepare for new technology: 29 per cent of GB employees said they were not offered training by their employer to prepare for technology changing their role. The less qualified an employee, the less likely their employer is to offer them such training; only 31 per cent of employees holding GCSE-level qualifications are offered training, compared with 48 per cent of A-level-holders and 51 per cent of first degree-holders.

Thinking about any potential changes to your role in the future due to new technology... Does your employer currently offer any training to help you prepare for these changes?

Yes, they do	No, they don't	Don't know	Not applicable – I do not think there will be any potential changes to my role in the future due to new technology
45%	29%	8%	18%

6. Future take-up of training: Of those who said their employer offers training to prepare them for technology change 9 in 10 employees said they were likely to engage in such training in the future. Only 6 per cent said they were unlikely to take part.

You said that your employer offers training to help you prepare for any potential changes to your role in the future due to new technology. How likely or unlikely would you be to take part in this training at any point in the future?

Very likely	Fairly likely	Fairly unlikely	Very unlikely	Don't know
44%	46%	5%	1%	4%

ENDNOTES

1. Hawksworth, John, Richard Berriman and Saloni Goel. 2018. *Will robots really steal our jobs? An international analysis of the potential long term impact of automation*. PwC.
2. Roberts, Carys et al. 2019. *The future is ours: Women, automation and equality in the digital age*. IPPR.
3. Bank of England. 2020a. *Monetary policy report: August 2020*.
4. ONS. 2020a. *Coronavirus and homeworking in the UK: April 2020*.
5. ONS. 2020b. *Internet sales as a percentage of total retail sales (ratio) (%)*. 18 September 2020 release.
6. Muro, Mark, Robert Maxim and Jacob Whinton. 2020. *The robots are ready as the COVID-19 recession spreads*. Brookings Institution. Available at: www.brookings.edu/blog/the-avenue/2020/03/24/the-robots-are-ready-as-the-covid-19-recession-spreads/ [Accessed 01/10/2020].
7. World Economic Forum. 2020. *The future of jobs report 2020*.
8. ONS. 2019a. *The probability of automation in England: 2011 and 2017*.
9. HMRC. 2020a. *HMRC coronavirus (COVID-19) statistics*. 22 October 2020 update.
10. ONS. 2019b. *Probability of automation in England*.
11. ONS. 2020c. *Industry (2, 3 and 5 - digit SIC) – Business Register and Employment Survey (BRES): Table 2*. 06 November 2020 release.
12. Cominetti, Nye, Laura Gardiner and Hannah Slaughter. 2020. *The full monty: Facing up to the challenge of the coronavirus labour market crisis*. Resolution Foundation, p.44.
13. Cominetti, Gardiner and Slaughter. 2020.
14. Pregnant then Screwed. 2020. *Childcare, Covid and career: The true scale of the crisis facing working mums*. Available at: <https://pregnant-thenscrewed.com/childcare-covid-and-career/> [Accessed 01/10/2020].
15. ONS. 2019b.
16. ONS. 2020e. *Which jobs can be done from home?*
17. Mims, Christopher. 2020. *Covid-19 is dividing the American worker*. *The Wall Street Journal*. Available at: www.wsj.com/articles/covid-19-is-dividing-the-american-worker-11598068859 [Accessed 01/10/2020].
18. Romei, Valentina and John Burn-Murdoch. 2020. *From peak city to ghost town: the urban centres hit hardest by Covid-19*. Financial Times. Available at: www.ft.com/content/d5b45dba-14dc-443b-8a8c-e9e9bbc3fb9a [Accessed 24/11/2020].
19. Autor, David and Elisabeth Reynolds. 2020. *The nature of work after the Covid crisis: Too few low-wage jobs*. Brookings Institution.
20. McCann, Philip. 2016. *The UK regional-national economic problem: Geography, globalisation and governance*. Routledge; Martin, Ron and Peter Sunley. 2014. *On the notion of regional economic resilience: Conceptualisation and explanation*.
21. ONS. 2020f. *Coronavirus and the latest indicators for the UK economy and society: 3 September 2020*.
22. Department for Digital, Culture, Media and Sport and ONS. 2020. *DCMS sectors economic estimates 2019: Employment*.
23. World Economic Forum. 2020.
24. Spending Review 2020, HM Treasury, 2020
25. Sibieta, Luke. 2019. *Going further on further education?* Institute for Fiscal Studies. Available at: www.ifs.org.uk/publications/14625 [Accessed 20/05/2020].
26. Harrop, Andrew and Cameron Tait. 2017. *Universal basic income and the future of work*. Fabian Society.
27. Crafts, Nicholas and Terence C. Mills. 2020. 'Is the UK productivity slowdown unprecedented?'. *National Institute Economic Review*, 251, pp.R47–R53.
28. Brewer, Mike et al. 2020. *The Living Standards Audit 2020*. Resolution Foundation.
29. Brewer et al. 2020.
30. Gutiérrez, Germán and Sophie Piton. 2019. *Revisiting the global decline of the (non-housing) labor share*. Bank of England.
31. International Federation of Robotics. 2019. *Brexit: UK falling back in global automation race – robot sales down 3%*. Available at: <https://ifr.org/ifr-press-releases/news/brexit-uk-falling-back-in-global-automation-race-robot-sales-down-3> [Accessed 21/08/2019].
32. MMC Ventures. 2019. *The state of AI 2019: Divergence*, p.101.
33. House of Lords Select Committee on Artificial Intelligence. 2018. *AI in the UK: ready, willing and able?*, pp.64–65; Haldane, Andrew G. 2017. *Productivity puzzles* (speech given at the London School of Economics). Bank of England, p.3.
34. Haldane, Andrew G. 2018. *The UK's productivity problem: Hub no spokes* (speech given at the Academy of Social Sciences Annual Lecture). Bank of England.
35. CIPD evidence submission to the commission on workers and technology.
36. Harford, Tim. 2017. *Why didn't electricity immediately change manufacturing?* BBC. Available at: www.bbc.co.uk/news/business-40673694 [Accessed 19/08/2020].
37. Ford, Martin. 2015. *The rise of the robots: Technology and the threat of mass unemployment*.
38. Bank of England. 2020b. *A millennium of macroeconomic data*. Available at: www.bankofengland.co.uk/statistics/research-datasets [Accessed 19/08/2020]; ONS. 2020g. *Employment in the UK: May 2020*.
39. ONS. 2019a.
40. ONS. 2019c. *Which occupations are at highest risk of being automated?*
41. Wallace-Stephens, Fabian. 2020. *What new jobs will emerge in the 2020s?* RSA. Available at: www.thersa.org/blog/2020/01/new-jobs-2020s [Accessed 06/10/2020].
42. Bank of England. 2020b.
43. Ciarli, Tommaso, Edgar Salgado and Maria Savona. 2018. *Does increasing firm and sector productivity drive up wages for workers?* Joseph Rowntree Foundation.
44. Riley, Rebecca and Chiara Rosazza Bondibene. 2015. *Raising the standard: Minimum wages and firm productivity*. National Institute of Economic and Social Research; Rizov, Marian, Richard Croucher and Thomas Lange. 2016. 'The UK National Minimum Wage's impact on productivity'. *British Journal of Management*, Vol. 27 Issue 4, pp.819–835.
45. ONS. 2019d. *Earnings and hours worked, industry by two-digit SIC: ASHE Table 4*.
46. Fair Pay Agreements Working Group. 2018. *Fair pay agreements: Supporting workers and firms to drive productivity growth and share the benefits*.
47. ONS. 2019b.
48. ONS. 2019b.
49. Brussevich, Mariya et al. 2018. *Gender, technology, and the future of work*. IMF.
50. ONS. 2019b.
51. PwC. 2017. *Women in tech: Time to close the gender gap*.
52. Clarke, Stephen. 2019. *Mapping gaps: Geographic inequality in productivity and living standards*. Resolution Foundation; Raikes, Luke, Arianna Giovannini and Bianca Getzel. 2019. *Divided and connected: Regional inequalities in the North, the UK and the developed world – State of the North 2019*. IPPR North.
53. McCann. 2016; Tomaney, John and Andy Pike. 2019. 'The economics of belonging: a new approach to 'left-behind' places'. *Everyday Socialism*. Fabian Society, p.15.
54. ONS. 2019b.
55. Caliskan, Aylin, Joanna J. Bryson and Arvind Narayanan. 2017. 'Semantics derived automatically from language corpora contain human-like biases'. *Science*, Vol. 356 Issue 6334, pp.183–186; Rovatsos, Michael, Brent Mittelstadt and Ansgar Koene. 2019. *Landscape summary: Bias in algorithmic decision-making*. Centre for Data Ethics and Innovation.
56. Braganza, Nicola. 2019. *Essop & Others v Home Office landmark indirect race and age discrimination claims finally settle for over £1 million three days into hearing*. Garden Court Chambers. Available at: www.gardencourtchambers.co.uk/news/essop-and-others-v-home-office-landmark-indirect-race-and-age-discrimination-claims-finally-settle-for-over-1-million-three-days-into-hearing [Accessed 28/05/2020].
57. Devlin, Hannah. 2020. *AI systems claiming to 'read' emotions pose discrimination risks*. The Guardian. Available at: www.theguardian.com/technology/2020/feb/16/ai-systems-claiming-to-read-emotions-pose-discrimination-risks [Accessed 28/05/2020].
58. Silvester, Andy. 2020. *Exclusive: Barclays installs Big Brother-style spyware on employees' computers*. City A.M. Available at: www.cityam.com/exclusive-barclays-installs-big-brother-style-spyware-on-employees-computers/ [Accessed 28/05/2020].
59. Dastin, Jeffrey. 2018. *Amazon scraps secret AI recruiting tool that showed bias against women*. Reuters. Available at: www.reuters.com/article/us-amazon-com-jobs-automation-insight/amazon-scraps-secret-ai-recruiting

- tool-that-showed-bias-against-women-idUSKCN1MK08G [Accessed 28/05/2020].
60. Adler-Bell, Sam and Michelle Miller. 2018. *The datafication of employment: How surveillance and capitalism are shaping workers' futures without their knowledge*. The Century Foundation.
 61. Booth, Robert. 2019. *Unilever saves on recruiters by using AI to assess job interviews*. The Guardian. Available at: www.theguardian.com/technology/2019/oct/25/unilever-saves-on-recruiters-by-using-ai-to-assess-job-interviews#maincontent [Accessed 28/05/2020].
 62. Devlin. 2020.
 63. Thomas, Daniel and Jim Pickard. 2020. *Science and technology to drive new UK industrial strategy*. Financial Times. Available at: www.ft.com/content/a1246d56-ea69-48e5-82d9-efad76b63ea5 [Accessed 08/10/2020].
 64. Balawejder, Filip and Ellys Monahan. 2020. *Effective policy approaches to sectoral issues*. Industrial Strategy Council, p.56.
 65. Blundell, Jack. 2020. *Wage responses to gender gap reporting requirements*. Stanford University.
 66. Low Pay Commission. 2020. *The National Minimum Wage in 2020*.
 67. ONS. 2019e. *Annual Survey of Hours and Earnings time series of selected estimates*; ILO and OECD. 2018. *Building trust in a changing world of work: The Global Deal for Decent Work and Inclusive Growth flagship report 2018*, p.61.
 68. ILO and OECD. 2018, p.63.
 69. Bryson, Alex and John Forth. 2017. *The added value of trade unions: A review for the TUC of existing research*. TUC, p.34.
 70. ONS. 2020h. *Earnings and hours worked, occupation by four-digit SOC: ASHE Table 14*.
 71. Social Mobility Commission. 2020. *The stability of the early years workforce in England: An examination of national, regional and organisational barriers*; Skills for Care. 2019. *The state of the adult social care sector and workforce in England*.
 72. National Audit Office. 2020. *Review of the Town Deals selection process*; Ministry of Housing, Communities and Local Government. 2020. *Towns Fund: further guidance*.
 73. Industrial Strategy Council. 2019. *UK skills mismatch in 2030*.
 74. OECD. 2017a. *Getting skills right: United Kingdom*; OECD. 2018. *Skills for jobs*.
 75. Social Mobility Commission. 2019. *The adult skills gap: Is falling investment in UK adults stalling social mobility?*
 76. Social Mobility Commission. 2019.
 77. Department for Education. 2020. *Further education and skills: July 2020*.
 78. Industrial Strategy Council. 2019.
 79. ONS. 2019f. *Characteristics and benefits of training at work, UK: 2017*.
 80. ONS. 2019g. *In-work training characteristics and regression models, UK*.
 81. Green, Anne. 2012. *Skills for competitiveness: Country report for United Kingdom*. OECD.
 82. McCann, Philip and Raquel Ortega-Arگیés. 2011. *Smart specialisation, regional growth and applications to EU cohesion policy*. Economic Geography working paper 2011. Faculty Of Spatial Sciences, University Of Groningen.
 83. Britton, Jack, Christine Farquharson and Luke Sibieta. 2019. *2019 annual report on education spending in England*. Institute for Fiscal Studies, p.69.
 84. Department for Education. 2020.
 85. Linford, Nick. 2019. *The numbers expose the truth – level 6 and 7 is mostly 'dead weight' and unaffordable*. FE Week. Available at: <https://feweek.co.uk/2019/03/22/the-numbers-expose-the-truth-level-6-and-7-is-mostly-dead-weight-and-unaffordable/> [Accessed 14/08/2020].
 86. TUC. 2020. *Employers and unions unite in call to protect "brilliant" and "vital" Union Learning Fund*. Available at: www.tuc.org.uk/news/employers-and-unions-unite-call-protect-brilliant-and-vital-union-learning-fund [Accessed 19/11/2020].
 87. The Conservative and Unionist Party. 2019. *Get Brexit done, unleash Britain's potential: The Conservative and Unionist party manifesto 2019*, p.36; 10 Downing Street. 2020. *Major expansion of post-18 education and training to level up and prepare workers for post-COVID economy*. Available at: www.gov.uk/government/news/major-expansion-of-post-18-education-and-training-to-level-up-and-prepare-workers-for-post-covid-economy [Accessed 08/10/2020].
 88. Spending review 2020, HM Treasury, 2020
 89. HM Treasury. 2020. *Plan for jobs*; Phillips, David. 2020. *Up to £10 billion of the Chancellor's 'Plan for Jobs' will be funded by underspends on previously planned projects*. IFS. Available at: www.ifs.org.uk/publications/14938 [Accessed 20/08/2020].
 90. Sibieta. 2019.
 91. Dromey, Joe and Clare McNeil. 2017. *Skills 2030: Why the adult skills system is failing to build an economy that works for everyone*. IPPR, p.22.
 92. OECD. 2019. *Getting skills right: Future-ready adult learning systems*.
 93. OECD. 2019.
 94. OECD. 2019.
 95. ONS. 2020i. *CLA01: Claimant count (experimental statistics)*. 10 Downing Street. 2020.
 96. HM Government. 2020. *What qualification levels mean*. Available at: www.gov.uk/what-different-qualification-levels-mean/list-of-qualification-levels [Accessed 20/08/2020].
 98. Benson, Jeremy. 2015. *Explaining the RQF*. Ofqual. Available at: <https://ofqual.blog.gov.uk/2015/10/01/explaining-the-rqf/> [Accessed 20/08/2020].
 99. Parsley, David. 2020. *Coronavirus latest: Interest surges in Open University online courses as fearful workers seek new skills*. The i. Available at: <https://inews.co.uk/news/business/coronavirus-latest-interest-open-university-online-courses-fearful-workers-skills-improvement-428498> [Accessed 03/07/2020]; Brittin, Matt. 2020. *Protecting Europe's workers: The urgent need for skills*. Google. Available at: www.blog.google/around-the-globe/google-europe/protecting-europes-workers-the-urgent-need-for-skills/ [Accessed 03/07/2020].
 100. Gabriel, Madeleine, Jack Orlik and Olivia Chapman. 2020. *Will the Lifetime Skills Guarantee help people find jobs in the aftermath of COVID-19?* Nesta. Available at: www.nesta.org.uk/blog/will-lifetime-skills-guarantee-help-people-find-jobs-aftermath-covid-19/ [Accessed 30/10/2020].
 101. Stuart, Mark et al. 2016. *Evaluation of the Union Learning Fund rounds 15–16 and support role of Unionlearn*. Centre for Employment Relations Innovation and Change, University of Leeds and Marchmont Observatory, University of Exeter.
 102. Parker, Kate. 2020. *Union Learning Fund to be scrapped from March 2021*. Tes. Available at: www.tes.com/news/union-learning-fund-be-scrapped-march-2021 [Accessed 29/10/2020].
 103. Independent Commission for Lifelong Learning. 2019. *The future is ours to learn: Final report of Labour's Lifelong Learning Commission*. The Labour Party.
 104. CIPD. 2018. *The road to good work*, p.8.
 105. ONS. 2020j. *Coronavirus and homeworking in the UK labour market: 2019*; ONS. 2019h. *Home-workers by UK region, 2008 compared to 2018*.
 106. YouGov survey, 25–29 March 2020. Available at: https://docs.cdn.yougov.com/xc5f4p3gcg/Internal_CoronaHabitChanges_200407.pdf [Accessed 20/08/2020].
 107. CIPD evidence submission to the commission on workers and technology.
 108. 108 Ingham, Lucy. 2019. *Flexible working the "new normal" as technology redefines the office*. Verdict. Available at: www.verdict.co.uk/flexible-working-technology [Accessed 27/05/2020].
 109. BBC. 2020a. *Home working reduces creative thought, says Bank economist*. Available at: www.bbc.co.uk/news/business-54702769 [Accessed 02/11/2020].
 110. Pissarides, Christopher and Anna Thomas. 2019. 'Part 1'. *The future of good work: The foundation of a modern moral economy*. Institute for the Future of Work, p.5.
 111. OECD. 2016. *Automation and independent work in a digital economy*, pp.3–4.
 112. ONS. 2020k. *Coronavirus and self-employment in the UK*.
 113. Kelley, Nancy, Christopher Warhurst and Robert Wishart. 2018. 'Work and welfare'. *British Social Attitudes 35*. NatCen Social Research, pp.5–8.
 114. Bakhshi, Hasan, et al. 2017. *The future of skills employment in 2030*. Nesta.
 115. 115 BBC. 2020b. *Barclays scraps 'Big Brother' staff tracking system*. Available at: www.bbc.co.uk/news/business-51570401 [Accessed 07/10/2020].
 116. TUC. 2018a. *I'll be watching you: A report on workplace monitoring*, pp.3, 15.
 117. Dellot, Benedict and Fabian Wallace-Stephens. 2018. *Good work in an age of radical technologies*. RSA, p.12.
 118. McKay, Stephen and Ian Simpson. 2016. 'Work'. *British Social Attitudes 33*. NatCen Social Research, p.14.
 119. Green, Frances et al. 2018. *Work intensity in Britain – first findings from the Skills and Em-*

- ployment Survey 2017. Centre for Learning and Life Chances in Knowledge Economies and Societies, UCL Institute of Education, p.2.
120. Brione, Patrick. 2017. Mind over machines: New technology and employment relations. Acas, p.7.
 121. Bloom, Nick and John Van Reenen. 2006. 'Management practices, work-life balance, and productivity: A review of some recent evidence'. *Oxford Review of Economic Policy*, Vol. 22 Issue 4, pp.457–482.
 122. Brione. 2017, p.23.
 123. TUC. 2018a, p.15.
 124. Brione. 2017, p.17.
 125. Liverpool City Region Combined Authority. 2019. *Fair Employment Charter: Consultation document*.
 126. HM Government. 2018. *Good work plan*.
 127. TUC. 2018b. *Taylor Review: Employment status – TUC response to the BEIS/HMT/HMRC consultation*.
 128. HM Government. 2018, p.28.
 129. House of Lords Economic Affairs Committee – Finance Bill Sub-Committee. 2020. *Off-payroll working: Treating people fairly*.
 130. Bryson and Forth. 2017; Mishel, Lawrence and Matthew Walters. 2003. *How unions help all workers*. Economic Policy Institute; Bivens, Josh et al. 2017. *How today's unions help working people*. Economic Policy Institute.
 131. Acas. *Why are communications and consultation so important?* Available at: <https://archive.acas.org.uk/index.aspx?articleid=665> [Accessed 21/03/2020]; Investors in People. *Employee voice: why is it important to sustainable success?* Available at: www.investorsinpeople.com/knowledge/employee-voice/ [Accessed 21/03/2020].
 132. Bryson and Forth. 2017, p.33.
 133. Brione. 2017, p.34.
 134. De Stefano, Valerio. 2018. *Negotiating the algorithm: Automation, artificial intelligence and labour protection*. ILO, p.22.
 135. Brione. 2017, pp.38–39.
 136. Bank of England. 2020b; Department for Business, Energy and Industrial Strategy. 2020. *Trade union statistics 2019*. 27 May 2020 release.
 137. Gross, Anna, Bethan Staton and Delphine Strauss. 2020. *Pandemic crisis prompts revival in trade union membership*. Financial Times. Available at: www.ft.com/content/4613a279-e2ac-40f0-a515-0350003b9e31 [Accessed 08/10/2020].
 138. Department for Business, Energy and Industrial Strategy. 2020; Machin, Stephen. 2000. *Union decline in Britain*. Centre for Economic Performance, London School of Economics; OECD. 2017b. *OECD employment outlook 2017*.
 139. Prospect. 2020. *Future of work: Employers' collection and use of worker data*.
 140. European Commission. 2018. *Employment and social developments in Europe: Annual review 2018*, p.164.
 141. Brock, Jason. 2019. *Getting organised: Low-paid self-employment and trade unions*. Fabian Society, p.4.
 142. Department for Business, Energy and Industrial Strategy. 2020.
 143. Department for Business, Energy and Industrial Strategy. 2020.
 144. Fulton, Lionel. 2013. *Worker representation in Europe*. Labour Research Department and ETUI.
 145. Taylor, Matthew. 2017. *Good work: The Taylor review of modern working practices*. Department for Business, Energy and Industrial Strategy, p.53.
 146. BBC. 2016. *Theresa May vows to put Conservatives "at service" of working people*. Available at: www.bbc.co.uk/news/uk-36760953 [Accessed 12/11/2019].
 147. The Institute of Employment Rights. 2019. *Employers overwhelmingly reject worker-director role, survey finds*. Available at: www.ier.org.uk/news/employers-overwhelmingly-reject-worker-director-role-survey-finds [Accessed 12/11/2019].
 148. HMRC. 2020c. *HMRC coronavirus (COVID-19) statistics*. 05 October 2020 update.
 149. Brock. 2019.
 150. Simms, Melanie, Jane Holgate and Andy Hodder. 2018. *Organising innovation: Unions, young workers and precarity*. Unions 21; Willman, Paul, Alex Bryson and John Forth. 2019. *New model unions: Options for the 21st century*. Unions 21; Wallace-Stephens, Fabian. 2019. *4 key takeaways from Future Work Awards 2019*. RSA. Available at: www.thersa.org/blog/2019/02/4-key-takeaways-from-the-future-work-awards-2019 [Accessed 12/10/2020].
 151. BALPA. 2020. *BA pilots accept jobs deal*. Available at: www.balpa.org/Media-Centre/Press-Releases/BA-pilots-accept-Jobs-Deal [Accessed 12/10/2020].
 152. Fabian Society. 2019. *Workers and technology: Carolyn Fairbairn and Frances O'Grady in conversation*. Available at: <https://fabians.org.uk/workers-and-technology-carolyn-fairbairn-and-frances-ogrady-in-conversation/> [Accessed 25/06/2020].
 153. Unite the Union. 2017. *Work voice pay: Draft new technology agreement*.
 154. Trade Union and Labour Relations (Consolidation) Act 1992, Section 70B. Available at: www.legislation.gov.uk/ukpga/1992/52/section/70B [Accessed 20/08/2020].
 155. Acas. *Information and consultation of employees (ICE)*. Available at: <https://archive.acas.org.uk/article/1598/Information-and-consultation-of-employees-ICE-> [Accessed 23/03/2020].
 156. Williamson, Janet. 2013. *Workers on board: The case for workers' voice in corporate governance*. TUC.
 157. Williamson. 2013.
 158. Fulton, Lionel. 2020. *National Industrial Relations, an update*. Labour Research Department and ETUI.
 159. Fulton. 2020.
 160. Fulton. 2020.
 161. Fulton. 2013.
 162. Fulton. 2013.

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