

Debate Pack

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Potential impact of artificial intelligence on the labour market

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1. Background

A [Westminster Hall debate](#) on the ‘Potential impact of artificial intelligence on the labour market’ is scheduled for Wednesday 26 April 2023, from 2:30-4pm

The debate will be led by [Mick Whitley MP](#).

1.1 What is artificial intelligence?

There is no single, universally-agreed definition of artificial intelligence (AI). It can broadly be thought of as technologies that enable computers to simulate elements of human intelligence, such as perception, learning and reasoning. To achieve this, AI systems rely upon large data sets from which they can decipher patterns and correlations, thereby enabling the system to ‘learn’ how to predict / anticipate future events. It does this by creating rules – algorithms – in response to the data, turning it into actionable information.

There are multiple subcategories of AI, such as machine learning and deep learning, as well as narrow AI and general (‘strong’) AI. Further information on the subcategories is set out at:

Stanford University, Human-Centred Artificial Intelligence, [Artificial Intelligence Definitions](#) (PDF), September 2020.

In short, **narrow AI** is designed to perform a specific task (such as speech recognition), using information from specific data sets, and cannot adapt to perform another task. These are often tools that aim to assist, rather than replace, the work of humans. **Artificial general intelligence** (AGI – also referred to as ‘strong’ AI) is an AI system that can undertake any intellectual task / problem that a human can. AGI is a system that can reason, analyse and achieve a level of understanding that is on a par with humans; something that has yet to be achieved by AI. The [US computer scientist Nils John Nilsson](#), for example, proposed that one way to test if a system had achieved AGI was if it was able to enter the world of employment and successfully learn the skills to perform the different jobs “ordinarily performed by humans”, from “knowledge work” (such as a ‘Library assistant’) to “manual labour” (such as a ‘roofer’).

Machine learning is a method that can be used to achieve narrow AI; it allows a system to learn and improve from examples without all its instructions being explicitly programmed. **Deep learning** is a type of machine learning whose design is inspired by the structure and function of the human brain and the way it transmits information.

For further information see the Parliamentary Office of Science and Technology briefing on [Interpretable machine learning](#) (October 2020).

AI and the UK

In early March 2023, the newly established Department for Science, Innovation and Technology published the [Science and Technology Framework](#) setting out the Government's approach to "making the UK a science and technology superpower by 2030". Five "critical technologies" were identified in the document, including artificial intelligence. The Government emphasised in the Framework document that it was aiming to develop a "pro-innovation approach to regulating AI" – a commitment initially articulated in the Government's [National AI Strategy](#) published in 2021.

A [White Paper setting out the Government's approach to AI regulation](#) followed later in March 2023, informed by the feedback received in its [public consultation in 2022](#). Building on the 2022 consultation, it is stated in the White Paper that, in the UK, AI will be overseen by existing regulators, covering specific sectors, so that rather than regulating the technology itself, it is instead regulated in the context within which it is used (eg financial services). The Government proposes that regulation, and the "responsible development and use of AI in all sectors of the economy" will be informed by five, cross-sector principles:

- Safety, security and robustness
- Appropriate transparency and explainability
- Fairness
- Accountability and governance
- Contestability and redress

It is also proposed in the White Paper that the principles will not, at least initially, be placed on a statutory footing, to avoid "hold[ing] back" innovation, but instead will be "issued on a non-statutory basis and implemented by existing regulators".

To assist businesses, it is suggested in the White Paper that:

After the implementation of the UK's new AI regulatory framework, the Equality and Human Rights Commission (EHRC) and the Information Commissioner Office (ICO) will be supported and encouraged to work with the Employment Agency Standards Inspectorate (EASI) and other regulators and organisations in the employment sector to issue joint guidance [which could address] the use of AI systems in recruitment or employment.

[A further consultation accompanied the publication of the White Paper](#). In particular, feedback is sought on the (revised) cross-sector principles for regulating AI, namely safety, transparency/explainability, fairness, accountability and contestability. The consultation closes on the 21 June 2023.

The Government has also examined the specific impacts of AI on employment, such as in its policy paper on [The Potential Impact of Artificial Intelligence on UK Employment and the Demand for Skills](#) (PDF – October 2021) while the BEIS select committee examined [AI and technology in the workplace](#) as part of its [Post-pandemic economic growth: UK labour markets inquiry](#) (see below for further discussion). In addition, the Commons Science and Technology select committee has an ongoing inquiry into the [Governance of artificial intelligence \(AI\)](#).

1.2 Regulation of workplace AI

Currently there are no UK regulations specifically relating to the use of AI at work. However, there are a number of areas of data protection and employment law which are potentially relevant.

General Data Protection Regulations

The UK General Data Protection Regulation (UK GDPR), implemented through the Data Protection Act 2018, offers people some protection from automated decision making that has significant effects on their lives. Article 22(1) of GDPR states:

The data subject shall have the right not to be subject to a decision based solely on automated processing, including profiling, which produces legal effects concerning him or her or similarly affects him or her.¹

The Information Commissioner’s Office (ICO) has published detailed guidance on the law around [Automated decision-making and profiling](#) that explains these regulations.²

Article 22(1) of UK GDPR limits the situations in which people can be subject to “solely automated decisions”. This means decisions made by automated systems without any human influence on the outcome. As the ICO notes, “A process won’t be considered solely automated if someone weighs up and interprets the result of an automated decision before applying it to the individual.”³

In particular, the regulations restrict the use of solely automated decisions that make legal or similarly significant decisions. The ICO notes that “similarly significant effects” can include automated recruitment processes and provides the following example:

¹ Article 22(1), GDPR, implemented through [section 49 of the Data Protection Act 2018](#)

² [What does the UK GDPR say about automated decision-making and profiling?](#), ICO, [accessed 24 April 2023]

³ As above

As part of their recruitment process, an organisation decides to interview certain people based entirely on the results achieved in an online aptitude test. This decision has a significant effect, since it determines whether or not someone can be considered for the job.⁴

There are a set of exceptions set out in Article 22(2) which allow such decisions to be automated in some circumstances. These exceptions are:

- When the decision is necessary for a contract;
- When the decision is authorised by law; or
- When the decision is based on the individual's explicit consent.

Article 22 also gives data subjects the right to understand the reasons behind decisions made about them by automated processing and the possible consequences of those decisions.

The [Data Protection and Digital Information \(No. 2\) Bill](#), currently waiting for Committee stage before the House of Commons, would entirely replace Article 22 of the UK GDPR with a set of new regulations, allowing solely automated decision-making with significant effects in situations outside the three exceptions listed above, but with new safeguards such as:

- notifying the data subject after such a decision had been taken.
- enabling the data subject to make representations about the decision.
- enabling the data subject to obtain human intervention on the part of the controller in relation to such a decision.
- enabling the data subject to contest such a decision⁵

The Library briefing paper on [The Data Protection and Digital Information \(No. 2\) Bill 2022-23](#) discusses these proposed changes in more detail under section 3.4.

Discrimination

[Part 5 of the Equality Act 2010](#) prohibits work related discrimination on the basis of any protected characteristics such as sex, age, race or disability. This applies to both discrimination in-work and also discrimination about who to offer or not offer work to during recruitment.

Where management decisions affecting people's employment are made or informed by AI, there is therefore a risk of discrimination if there are biases in the AI model.

⁴ As above

⁵ Article 22C(1) and (2), Data Protection and Digital Information (No. 2) Bill 2022-23

AI is increasingly used in the recruitment sector where, for example, it can carry out tasks such as CV sifting with significantly greater speed than humans.⁶ Some proponents of AI have suggested it offers the potential to reduce or even eliminate human biases from the recruitment process.⁷ Some researchers, however, have found attempts to use AI to reduce bias this way have been ineffective or even counterproductive, citing examples of high profile failures such as the attempt by Amazon to use AI recruitment which had to be abandoned after it was discovered to be discriminating against female applicants on the basis of gender clues in their CVs.⁸

In July 2021 it was reported that the Information Commissioner's Office was investigating reports that AI systems being used for recruitment in the UK were demonstrating racial bias. The ICO said:

We will be investigating concerns over the use of algorithms to sift recruitment applications, which could be negatively impacting employment opportunities of those from diverse backgrounds.⁹

Use of AI in other aspects of employment relations, such as shift allocation or performance management, are also at risk of breaching the Equality Act if biases in the AI's decision-making leads to discrimination.

Other employment rights

The way in which AI collects and analyses workplace data may also be relevant for other employment rights. For example, protections against unfair dismissal or redundancy, if AI tools are used as part of the performance management process or part of identifying positions for redundancy.

The legal test for unfair dismissal, for example, involves multiple steps. Whether the dismissal was for a potentially fair reason; whether, in the circumstances, the employer acted reasonably in treating the reason as sufficient for dismissing the employee; and whether it followed a fair process. The fact that an employer uses an AI to inform their decision making during this process does not alter the legal tests that must be met but may make it more complicated to judge them.

In their report for the TUC and AI Law "[Technology Managing People – the legal implications](#)" (PDF), Robin Allen QC and Dee Masters discuss various ways in which automated decisions might interact with current UK employment law. This includes common law requirements for "mutual trust and confidence" between employer and employee, which in turn requires

⁶ Kat Gibbs and Sophie Nightingale, "[AI In Recruitment: Is It Possible To Use It Responsibly?](#)", Centre for Research and Evidence on Security Threats, 28 September 2022

⁷ See for example Frida Polli, "[Using AI to Eliminate Bias from Hiring](#)", Harvard Business Review, 29 October 2019

⁸ BBC News, "[AI tools fail to reduce recruitment bias – study](#)", 13 October 2022

⁹ Dan Milmo, "[UK data watchdog investigates whether AI systems show racial bias](#)", The Guardian, 14 July 2022

employers to make decisions about employees in a way “that is lawful, rational and in good faith”, as well as potentially requiring them to “provide explanations” for those decisions.¹⁰

All of these legal requirements could potentially limit the ways in which AI decision making can be used in the employment relationship.

1.3 Impact of AI on employment levels in the UK

A range of bodies have reported on the potential impact of AI on employment within the UK, which will be summarised in the following section.

PwC/Department for Business, Energy and Industrial Strategy

The then Department for Business, Energy & Industrial Strategy commissioned PwC to undertake research on the potential impact of AI on the UK labour market. The report, published in October 2021, looked to answer two main questions:¹¹

1. Whether AI and related technologies will displace large numbers of workers from their jobs over the coming decade.
2. How large the disruption to labour markets will be.

The focus of the research was on the potential distributional effects of AI on employment within the UK over the next 5, 10 and 20 years. They found that 7% of jobs were at high risk of being automated in the next 5 years, rising to 30% after 20 years:¹²

Our base case estimate is that around 7% of existing UK jobs could face a high (over 70%) probability of automation over the next 5 years, rising to around 18% after 10 years and just under 30% after 20 years. This is within the range of estimates from previous studies and draws on views from an expert workshop on the automatability of occupations and detailed analysis of OECD and ONS data on how this is related to the task composition and skills required for different occupations.

However, the research also reported that many jobs would be created through the AI-related productivity and economic growth. It points out that AI will create many jobs in sectors that are harder to automate – such as health

¹⁰ Robin Allen QC and Dee Masters, “[Technology Managing People – the legal implications](#)”[PDF], TUC and AI Law, March 2021, paras 1.42-1.43

¹¹ DSIT/BEIS, [The potential impact of AI on UK employment and the demand for skills](#), 8 October 2021

¹² PWC/BEIS, [The Potential Impact of Artificial Intelligence on UK Employment and the Demand for Skills](#), 8 October 2021

and personal care – which will be in greater demand as higher productivity leads to additional real incomes and spending.

The report concludes that the most plausible assumption is that the long-term impact of AI on employment levels in the UK is broadly neutral, but that the potential impact is unclear.

Impact by sector and occupation

The report also looked at the distributional impacts of AI, including the employment effects on different industry sectors.¹³

The manufacturing sector was highlighted as being at risk of losing the most jobs over the next 20 years, with job losses also expected in the transport & logistics, public admin and defence, the wholesale and retail sectors.

In contrast, the health and social work sector was highlighted as most likely to see the largest job gains, while gains are also expected in the professional and scientific, education, and information and comms sectors.

Jobs in lower paid clerical and process-orientated roles were most likely to be at risk of being lost, with job gains in managerial and professional occupations.

Business, Energy and Industrial Strategy Committee

On 21 April 2023, the Business, Energy and Industrial Strategy Committee published its inquiry report, [Post-pandemic economic growth: UK labour markets](#).¹⁴ This report included a section that looked at the threat that AI posed to jobs.¹⁵

This report also highlighted the impact that AI could have on productivity within the UK. It refers to research from Deloitte that found that “by 2035 AI could boost UK labour market productivity by 25%”, and that “Four out of five UK organisations said that use of AI tools had made their employees more productive, improved their decision-making, and made their process more efficient”.

It also makes the point that AI and related technologies may have a positive impact on helping people access the labour market who have otherwise found it difficult to find and stay in employment, such as disabled people.

¹³ PWC/BEIS, [The Potential Impact of Artificial Intelligence on UK Employment and the Demand for Skills](#), 8 October 2021

¹⁴ Business, Energy and Industrial Strategy Committee, [Post-pandemic economic growth: UK labour markets inquiry](#)

¹⁵ Business, Energy and Industrial Strategy Committee, [Post-pandemic economic growth: UK labour markets](#), 21 April 2023, p16-18

Office for National Statistics

A report from the ONS in 2019 found that in 2017, ‘around 1.5 million jobs in England are at high risk of some of their duties and tasks being automated in the future’, that’s 7.4% of jobs in England. Note that automation includes other technological changes in addition to AI.

It found that women and young people were most likely to work in high-risk jobs. 70.2% of high-risk jobs were held by women. 20-24 year olds were most likely to be in a high-risk job, with 15.7% holding high-risk jobs, compared to 1.3% of 35-39 year olds.

Like in the BEIS report mentioned above, the occupations with the lowest probability of automation were medical practitioners and higher education teaching professionals.

The occupations with the highest probability of automation were waiters and waitresses, shelf fillers, elementary sales occupations and bar staff.¹⁶

OECD – Organisation for Economic Cooperation and Development

A 2021 OECD report studied the link between AI and employment in OECD countries between 2012 and 2019 and found that while overall, there is no clear relationship between AI and employment, in occupations where computer use is high, more AI leads to more employment. One explanation for this is AI allows workers to focus on higher value tasks, so increases their productivity.

It explains that technological progress usually increases labour efficiency by taking over or speeding up tasks performed by workers. There are two possible consequences of this:

- Substitution effect: employment may fall as tasks are automated;
- Productivity effect: lower production costs may increase output per employee.

To harness the productivity effect, workers will need to learn how to work with new technology and focus on tasks that AI cannot perform. The cost of this adaptation will depend on worker characteristics: highly educated workers, for example, often find it easier to adapt to new technologies because they are likely to already work with technologies and participate more in training.¹⁷

¹⁶ Office for National Statistics, [Which occupations are at highest risk of being automated?](#), 25 March 2019

¹⁷ OECD, [Artificial intelligence and employment](#), 15 December 2021

2

Parliamentary material

2.1

Committees

[Post-pandemic economic growth: UK labour markets](#) [see in particular chapters 3 and 4]

House of Commons Business, Energy and Industrial Strategy Select Committee HC 306 2022-23

21 April 2023

Summary

The UK has a tight labour market: the rate of unemployment remains close to a record low and the number of job vacancies, though lower than throughout 2022, still trends higher than pre-pandemic levels. A shortage of labour weighs heavily on the potential for economic growth. The Government's Spring Budget, which announced employment incentives, ranging from support with childcare costs to more generous pension allowances, demonstrates the political priority given to widening the pool of available labour.

Rates of economic inactivity have risen, and the UK is the only country in the developed world where people have continued dropping out of the labour market in greater numbers beyond the acute phase of the Covid-19 pandemic. About 500,000 people have left the British workforce since the start of the pandemic, driven by those deciding to take early retirement. With an ageing population, and the average age of workers in many sectors already above 50, older workers must be supported to remain in the workplace and workers of all ages must be able to access the skills development they need to meet the needs of the changing labour market and economy.

The majority of the current workforce will still be in the workforce in 2030 and reskilling workers is a major challenge. Reskilling and upskilling is important in order to meet the demands from employers for skilled workers and for workers to adapt to the increasing adoption of new technology across all sectors. The Government has already announced that it will introduce a Lifelong Loan Entitlement to give people the opportunity to study, train and upskill throughout their lives to respond to changing skills needs and employment patterns. This is welcome, but it needs to be done in partnership with business. Government and business must together create the climate for investment in skills and technology.

The adoption of AI and new technology in the workplace is necessary, but it is all too often implemented without involving workers in how it is deployed, or what it is being deployed for. As a consequence, workers can end up feeling anxious when surveillance AI is increasingly used for setting targets and monitoring their performance. The recent advances in AI technology, most

notably the creation of ChatGPT, present challenges for regulating responsible use of AI and technology in the workplace. We recognise that AI and technology offer enormous potential in the workplace and that innovation must be encouraged to deliver economic growth. However, while we welcome the Government's most recent White Paper on its approach to regulating AI, public trust must be earned through transparent implementation in the workplace, ideally with worker consultation and input, and with adequate safeguards and rights of redress when it is demonstrated to impinge on workers' rights and privacy.

The Taylor Review of Modern Working Practices looked at how employment law needed to adapt to keep pace with modern business practices in 2016. Driven by the rise in atypical forms of working, particularly in the 'gig economy', it set out recommendations around an explicit commitment for 'good work' for all through tackling exploitative employment practices, helping people to enforce their rights and aligning the incentives for driving labour market change with broader national objectives. Since that review was published, the labour market has changed considerably, partly driven by the pandemic, and also by the adoption of technology, that makes remote and hybrid working possible for many. For workers who do get to work more flexibly, however particularly those in the gig economy and in night-time work, they often do so without the proper rights and protections afforded to those who are employed. Enforcement of labour market rules in the UK is inadequate and results in unscrupulous employers getting away with bad practice. This is not because the existing regulators are not performing, it is because they are under-resourced and not given the priority they deserve for legislative reform.

Whilst this is a significant policy challenge, and a growing economic risk for the country, it is notable how dispersed Ministerial ownership of this policy area is across Whitehall. The Government must address this by improving the political leadership of labour market policy in government.

This report sets out positive actions the Government can take to shape economic growth by supporting employers to create the best working conditions to promote worker wellbeing and skills development and implement new technology in a fair and responsible way to contribute to a productive economy.

Machinery of Government

Ministerial responsibility for labour market policy is fragmented across Whitehall

departments. We therefore call on the Government to consider the following:

- a) establish a Ministry of Labour
- b) appoint a new Minister of State for Labour in the Cabinet Office with the authority to convene and coordinate labour market policy across Whitehall
- c) establish a Cabinet Committee on Labour, chaired by a Business and Trade Minister, which convenes each relevant Minister from each relevant Department on labour market policy.

Technology and skills development

- The Government must introduce, whether by statute in the Data Protection and Digital Information (No. 2) Bill, or by other means, a requirement on businesses to conduct impact assessments to understand the scope and consequences of the use of new technologies in the workplace;
- The Government must bring forward a new data poverty and digital skills strategy to set out how workers will be supported in the development of digital skills;
- The Government must establish a taskforce of relevant enforcement bodies, alongside the Centre for Data Ethics and Innovation and the TUC, to assess the implications of technology in the workplace;
- The Government must assess whether existing regulators have the expertise and capacity to perform the functions proposed in the recent White Paper on regulation of AI.

Workers' rights and protection

- The way in which the recommendations of the Taylor Review have been implemented has been fragmented and drawn-out. The Government must reconsider the need for an Employment Bill in the upcoming King's Speech to address gaps in employment protections;
- The desire to work flexibly has increased since the pandemic and its potential to make the labour market more inclusive for people who are excluded from traditional forms of work is transformative. Businesses must be more open to create more flexible constructions of work, and the Government must consider new legal structures for flexible work that include appropriate rights and protections for workers;
- Working night-time shifts can be detrimental to health. The Government must provide more protection for workers from any damaging effects of night-time working and, as a first step, commission an investigation into the health and safety implications of night-time working;
- The enforcement of labour market rules is under-resourced. The creation of the planned single enforcement body would clarify rights of redress for those most in need, but it must be resourced to at least the level of what is deemed appropriate by the International Labour Organisation.

Older workers

- As economic inactivity has risen among people aged 50 to 64 years, older workers must be supported to remain in work to lessen the effect of an ageing population on the cost of pension provision and labour supply. The Government's attention to this demographic in the Spring Budget is welcome, but what motivates people to continue working for longer must not be ignored;
- Employers must offer more flexible working opportunities to benefit from a huge untapped pool of older workers and they must assess whether their recruitment practices and workplaces are 'ageist';
- To improve upon the expansion of the mid-life MOT programme which will help more people make better-informed choices about work, health and

retirement, the Government must also look at how and where employment support is delivered for people over 50 and improve the availability of career coaching.

- The announcement of ‘returnerships’ for retaining older workers in the labour market is welcome. However, they must offer a decent package of training, value and recognise the skills that older workers already possess and offer flexible working opportunities to maximise take-up.
- Ministers must consider expanding the eligibility for access to initiatives which prove successful in supporting older workers to return to work, especially to increase economic activity amongst workers aged under 24.

2.2

House of Commons Debates

[Financial Statement and Budget Report](#)

15 March 2023 | House of Commons | 729 cc842-843

[Post Office: GLO Compensation Scheme](#)

07 Dec 2022 | Proceeding contributions | House of Commons chamber | 724 c362

Member: Mick Whitley (Birkenhead)

...however, the postmaster scandal has exposed the serious dangers inherent in using intrusive surveillance technology to monitor the activities of employees. A growing number of workplaces are adopting surveillance and artificial intelligence-assisted technology, and some employers are even reported to be delegating decisions on recruitment, promotions and even sackings to algorithms. The TUC has warned that worker surveillance is at risk of “spiralling out of control” without greater transparency and stronger regulation to protect workers. Will the Secretary of State now act to make it a statutory duty for employers to consult trade unions before introducing AI and automated decision-making systems in the workplace? Will he also ensure that every worker has the right to a human review of high-risk decisions made by technology?

Grant Shapps | Secretary of State for Business, Energy and Industrial Strategy

The hon. Gentleman makes an interesting point. We have a lot of new technologies coming along, including things such as AI and generative AI. If the Horizon Post Office scandal demonstrates anything, it is that we have to be very careful about how we implement technology. I love technology. It gives us a great opportunity for productivity, but if we get to a point where it is about, “Computer says no” or, “Computer says yes” and that is what we believe without testing the input to those machines and the way they have been programmed—this will become much more challenging with things such as AI in the future—we will have problems and we will end up with more of these sorts of scandals. He raises an interesting specific point about how that might be addressed. I would be very interested to hear more from him

about it, and perhaps we will organise a meeting, either with myself or with the Under-Secretary of State for Business, Energy and Industrial Strategy, my hon. Friend the Member for Thirsk and Malton.

2.3

Questions

Artificial Intelligence: Productivity

Asked by: Oswald, Kirsten

Written questions | House of Commons | 50993

Date answered: 27 Sep 2021

To ask the Secretary of State for Digital, Culture, Media and Sport, what assessment her Department has made of how productivity gains from artificial intelligence can be shared with workers.

Answering member: Chris Philp | Department: Department for Digital, Culture, Media and Sport

The Government published its National AI Strategy on 22nd September 2021. It can be viewed here <https://www.gov.uk/government/publications/national-ai-strategy>. The Strategy will ensure that the UK continues our global leadership in the research, development, commercialisation and adoption of responsible AI.

The Strategy sets out our ambition to drive prosperity across the UK and ensure everyone can benefit from AI.

In particular, the Strategy recognises that issues such as the equalities impacts of AI will be an important consideration as we continue to develop policy on the governance and regulation of AI. We will involve relevant regulators and equalities groups in this work. It also recognises the need to give more people the skills to work with AI, developing an AI-literate workforce.

The diversity of people working with and developing AI is an important component of the AI Strategy. We are already supporting 2,500 new Masters conversion courses in AI and data science across universities in England. Included in this program are up to 1,000 scholarships, which aims to increase the number of people from underrepresented groups and encourage graduates from diverse backgrounds to consider a future in AI and Data Science.

Artificial Intelligence: Employment

Asked by: Paul Farrelly

Written questions | House of Commons | 248599

Date answered: 08 May 2019

To ask the Secretary of State for Business, Energy and Industrial Strategy, what recent steps he has taken to train and prepare workers for the impact of artificial intelligence.

Answering member: Kelly Tolhurst | Department for Business, Energy and Industrial Strategy

The Industrial Strategy sets out the Government's vision to make the UK a global centre for AI and data innovation, alongside measures to ensure our people are equipped to capitalise on those opportunities.

We are improving the UK's system for training in digital skills and lifelong learning to ensure that working people have the support they need to navigate the challenge of automation to a higher-wage future. Through the Industrial Strategy we are delivering:

- 16 New Centres for Doctoral Training at universities across the country, delivering 1,000 new PhDs over the next 5 years;
- New prestigious AI fellowships to attract and retain the top AI talent, underpinned by up to £50m of funding agreed at Autumn Budget
- Industry-funding for new AI Masters places;
- Invested £406m in maths, digital and technical education; and
- Committed £100m for the first phase of developing the National Retraining Scheme to support people vulnerable to technological change.

The Government's Good Work Plan was published in December 2018 and will ensure that the labour market continues to work for everyone. The Plan commits to a wide range of policy and legislative changes to ensure that workers can access fair and decent work, that both employers and workers have the clarity they need to understand their employment relationships, and that the enforcement system is fair and fit for purpose.

2.4

House of Lords Debates

[Budget Statement](#)

16 March 2023 | House of Lords | 828 cc1466-1467

[AI in the UK \(Liaison Committee Report\)](#)

25 May 2022 | House of Lords | 822

3

Press notices

[UK unveils world leading approach to innovation in first artificial intelligence white paper to turbocharge growth](#)

Department for Science, Innovation & Technology

29 March 2023

Five principles, including safety, transparency and fairness, will guide the use of artificial intelligence in the UK, as part of a new national blueprint for our world class regulators to drive responsible innovation and maintain public trust in this revolutionary technology.

The UK's AI industry is thriving, employing over 50,000 people and contributing £3.7 billion to the economy last year. Britain is home to twice as many companies providing AI products and services as any other European country and hundreds more are created each year.

AI is already delivering real social and economic benefits for people, from helping doctors to identify diseases faster to helping British farmers use their land more efficiently and sustainably. Adopting artificial intelligence in more sectors could improve productivity and unlock growth, which is why the government is committed to unleashing AI's potential across the economy.

As AI continues developing rapidly, questions have been raised about the future risks it could pose to people's privacy, their human rights or their safety. There are concerns about the fairness of using AI tools to make decisions which impact people's lives, such as assessing the worthiness of loan or mortgage applications.

Alongside hundreds of millions of pounds of government investment announced at Budget, the proposals in the AI regulation white paper will help create the right environment for artificial intelligence to flourish safely in the UK.

Currently, organisations can be held back from using AI to its full potential because a patchwork of legal regimes causes confusion and financial and administrative burdens for businesses trying to comply with rules.

The government will avoid heavy-handed legislation which could stifle innovation and take an adaptable approach to regulating AI. Instead of giving responsibility for AI governance to a new single regulator, the government will empower existing regulators - such as the Health and Safety Executive, Equality and Human Rights Commission and Competition and Markets Authority - to come up with tailored, context-specific approaches that suit the way AI is actually being used in their sectors.

The white paper outlines 5 clear principles that these regulators should consider to best facilitate the safe and innovative use of AI in the industries they monitor. The principles are:

- safety, security and robustness: applications of AI should function in a secure, safe and robust way where risks are carefully managed
- transparency and explainability: organisations developing and deploying AI should be able to communicate when and how it is used and explain a system's decision-making process in an appropriate level of detail that matches the risks posed by the use of AI
- fairness: AI should be used in a way which complies with the UK's existing laws, for example the Equality Act 2010 or UK GDPR, and must not discriminate against individuals or create unfair commercial outcomes
- accountability and governance: measures are needed to ensure there is appropriate oversight of the way AI is being used and clear accountability for the outcomes
- contestability and redress: people need to have clear routes to dispute harmful outcomes or decisions generated by AI

This approach will mean the UK's rules can adapt as this fast-moving technology develops, ensuring protections for the public without holding businesses back from using AI technology to deliver stronger economic growth, better jobs, and bold new discoveries that radically improve people's lives.

Over the next 12 months, regulators will issue practical guidance to organisations, as well as other tools and resources like risk assessment templates, to set out how to implement these principles in their sectors. When parliamentary time allows, legislation could be introduced to ensure regulators consider the principles consistently.

Science, Innovation and Technology Secretary Michelle Donelan said

AI has the potential to make Britain a smarter, healthier and happier place to live and work. Artificial intelligence is no longer the stuff of science fiction, and the pace of AI development is staggering, so we need to have rules to make sure it is developed safely.

Our new approach is based on strong principles so that people can trust businesses to unleash this technology of tomorrow.

Businesses warmly welcomed initial proposals for this proportionate approach during a consultation last year and highlighted the need for more coordination between regulators to ensure the new framework is implemented effectively across the economy. As part of the white paper published today, the government is consulting on new processes to improve

coordination between regulators as well as monitor and evaluate the AI framework, making changes to improve the efficacy of the approach if needed.

£2 million will fund a new sandbox, a trial environment where businesses can test how regulation could be applied to AI products and services, to support innovators bringing new ideas to market without being blocked by rulebook barriers.

Organisations and individuals working with AI can share their views on the white paper as part of a new consultation launching today which will inform how the framework is developed in the months ahead.

Lila Ibrahim, Chief Operating Officer and UK AI Council Member, DeepMind, said:

AI has the potential to advance science and benefit humanity in numerous ways, from combating climate change to better understanding and treating diseases. This transformative technology can only reach its full potential if it is trusted, which requires public and private partnership in the spirit of pioneering responsibly. The UK's proposed context-driven approach will help regulation keep pace with the development of AI, support innovation and mitigate future risks.

Grazia Vittadini, Chief Technology Officer, Rolls-Royce, said:

Both our business and our customers will benefit from agile, context-driven AI regulation. It will enable us to continue to lead the technical and quality assurance innovations for safety-critical industrial AI applications, while remaining compliant with the standards of integrity, responsibility and trust that society demands from AI developers.

Sue Daley, Director for Tech and Innovation at techUK, said:

techUK welcomes the much-anticipated publication of the UK's AI white paper and supports its plans for a context-specific, principle-based approach to governing AI that promotes innovation. The government must now prioritise building the necessary regulatory capacity, expertise, and coordination. techUK stands ready to work alongside government and regulators to ensure that the benefits of this powerful technology are felt across both society and the economy.

Clare Barclay, CEO, Microsoft UK, said:

AI is the technology that will define the coming decades with the potential to supercharge economies, create new industries and amplify human ingenuity. If the UK is to succeed and lead in the age of intelligence, then it is critical to create an environment that fosters innovation, whilst ensuring an ethical and

responsible approach. We welcome the UK's commitment to being at the forefront of progress.

Rashik Parmar MBE, chief executive, BCS The Chartered Institute for IT, said:

AI is transforming how we learn, work, manage our health, discover our next binge-watch and even find love. The government's commitment to helping UK companies become global leaders in AI, while developing within responsible principles, strikes the right regulatory balance. As we watch AI growing up, we welcome the fact that our regulation will be cross-sectoral and more flexible than that proposed in the EU, while seeking to lead on aligning approaches between international partners. It is right that the risk of use is regulated, not the AI technology itself. It's also positive that the paper aims to create a central function to help monitor developments and identify risks. Similarly, the proposed multi-regulator sandbox [a safe testing environment] will help break down barriers and remove obstacles. We need to remember this future will be delivered by AI professionals - people - who believe in shared ethical values. Managing the risk of AI and building public trust is most effective when the people creating it work in an accountable and professional culture, rooted in world-leading standards and qualifications.

Notes to editors

[Read the AI regulation white paper.](#)

Organisations and individuals involved in the AI sector are encouraged to provide feedback on the white paper through [a consultation which launches today](#) and will run until Tuesday 21 June.

[Equality watchdog takes action to address discrimination in use of artificial intelligence](#)

Equality and Human Rights Commission (EHRC)

22 September 2022

The use of artificial intelligence by public bodies is to be monitored by Britain's equality regulator to ensure technologies are not discriminating against people.

There is emerging evidence that bias built into algorithms can lead to less favourable treatment of people with protected characteristics such as race and sex.

The Equality and Human Rights Commission (EHRC) has made tackling discrimination in AI a major strand of its new three-year strategy.

It is today publishing new guidance to help organisations avoid breaches of equality law, including the public sector equality duty (PSED). The guidance gives practical examples of how AI systems may be causing discriminatory outcomes.

From October, the Commission will work with a cross-section of around 30 local authorities to understand how they are using AI to deliver essential services, such as benefits payments, amid concerns that automated systems are inappropriately flagging certain families as a fraud risk.

The EHRC is also exploring how best to use its powers to examine how organisations are using facial recognition technology, following concerns that the software may be disproportionately affecting people from ethnic minorities.

These interventions will improve how organisations use AI and encourage public bodies to take action to address any negative equality and human rights impacts.

Marcial Boo, chief executive of the EHRC, yesterday said:

“While technology is often a force for good, there is evidence that some innovation, such as the use of artificial intelligence, can perpetuate bias and discrimination if poorly implemented.

“Many organisations may not know they could be breaking equality law, and people may not know how AI is used to make decisions about them.

“It’s vital for organisations to understand these potential biases and to address any equality and human rights impacts.

“As part of this, we are monitoring how public bodies use technology to make sure they are meeting their legal responsibilities, in line with our guidance published today. The EHRC is committed to working with partners across sectors to make sure technology benefits everyone, regardless of their background.”

The monitoring projects will last several months and will report initial findings early next year.

The Artificial intelligence in public services guidance advises organisations to consider how the PSED applies to automated processes, to be transparent about how the technology is used and to keep systems under constant review.

In the private sector, the EHRC is currently supporting a taxi driver in a race discrimination claim regarding Uber’s use of facial recognition technology for identification purposes.

Intrusive worker surveillance tech risks “spiralling out of control” without stronger regulation, TUC warns

TUC

28 February 2022

Intrusive worker surveillance tech and AI risks “spiralling out of control” without stronger regulation to protect workers, the TUC has today (Monday) warned.

Left unchecked, the union body says that these technologies could lead to widespread discrimination, work intensification and unfair treatment.

The warning comes as the TUC publishes new polling, conducted by Britain Thinks, which reveals an overwhelming majority of workers (60 per cent) believe they have been subject to some form of surveillance and monitoring at their current or most recent job.

The TUC says workplace surveillance tech took off during the pandemic as employers transferred to more remote forms of work.

Surveillance can include monitoring of emails and files, webcams on work computers, tracking of when and how much a worker is typing, calls made and movements made by the worker (using CCTV and trackable devices).

Three in 10 (28 per cent) agree monitoring and surveillance at work has increased since Covid – and young workers are particularly likely to agree (36 per cent of 18-34 year olds).

There has been a notable increase in workers reporting surveillance and monitoring in the past year alone (60 per cent in 2021 compared to 53 per cent 2020).

In particular, more workers are reporting monitoring of staff devices (24 per cent to 20 per cent) and monitoring of phone calls (14 per cent to 11 per cent) compared to 2020.

In calling for stronger regulation, the TUC highlights the recent Post Office scandal which saw hundreds wrongly prosecuted for theft and false accounting after a software error – and says it must be a turning point on uncritical use of worker monitoring tech and AI.

Creeping role of surveillance

The creeping role of AI and tech-driven workplace surveillance is now spreading far beyond the gig economy into the rest of the labour market, according to the TUC.

The following sectors have the greatest proportion of workers reporting surveillance:

- financial services (74 per cent)
- wholesale and retail (73 per cent)
- utilities (73 per cent)

The union body warns of a huge lack of transparency over the use of AI at work, with many staff left in the dark over how surveillance tech is being used to make decisions that directly affect them.

The use of automated decision making via AI includes selecting candidates for interview, day-to-day line management, performance ratings, shift allocation and deciding who is disciplined or made redundant.

The TUC adds that AI-powered technologies are currently being used to analyse facial expressions, tone of voice and accents to assess candidates' suitability for roles.

Union demands

To combat the rise of workplace surveillance tech and “management by algorithm”, the TUC is calling for:

- A statutory duty to consult trade unions before an employer introduces the use of artificial intelligence and automated decision-making systems.
- An employment bill which includes the right to disconnect, alongside digital rights to improve transparency around use of surveillance tech
- A universal right to human review of high-risk decisions made by technology

The TUC points out that the government recently consulted on diluting General Data Protection Regulation (GDPR) as part of its post-Brexit divergence agenda, despite it providing some key protections for workers against surveillance tech.

The EU is currently putting in place laws dealing specifically with the use of AI, whereas the UK does not have anything like this. The TUC says this is yet another example of the UK falling behind its EU counterparts on workers' rights.

There is significant and growing support among workers for stronger regulation of AI and tech-driven workplace surveillance:

Eight in ten (82 per cent) now support a legal requirement to consult before introducing monitoring (compared to 75 per cent in 2020)

Eight in 10 (77 per cent) support no monitoring outside working hours, suggesting strong support for a right to disconnect (compared to 72 per cent in 2020)

Seven in 10 (72 per cent) say that without careful regulation, using technology to make decisions about workers could increase unfair treatment (compared to 61 per cent 2020).

Last year the TUC launched its manifesto, [Dignity at work and the AI revolution](#), for the fair and transparent use of AI at work.

TUC General Secretary Frances O’Grady said:

“Worker surveillance tech has taken off during this pandemic – and now risks spiralling out of control.

“Employers are delegating serious decisions to algorithms – such as recruitment, promotions and sometimes even sackings.

“The Post Office scandal must be a turning point. Nobody should have their livelihood taken away by technology.

“Workers and unions must be properly consulted on the use of AI, and be protected from its punitive ways of working.

“And it’s time for ministers to bring forward the long-awaited employment bill to give workers a right to disconnect and properly switch off outside of working hours.”

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Press, Blogs and media articles

The following is a selection of news, blogs and media articles relevant to this debate. Please note: the Library is not responsible for either the views or the accuracy of external content.

[Fired by AI? Just Eat UK couriers 'deactivated for minor overpayments'](#)

The Guardian.com

22 April 2023

[TUC warns workers could be 'exploited' by new AI technologies – what are the dangers?](#)

People Management

20 April 2023

[AI anxiety: The workers who fear losing their jobs to artificial intelligence](#)

BBC.com

18 April 2023

[UK workers exposed to risks of AI revolution, warns TUC](#)

Financial Times

18 April 2023

[James Meadway on the state of worker surveillance](#)

Big Issue North

17 April 2023

[Labour must resist Tory deregulation of AI and set out an alternative vision](#)

Labour List

17 April 2023

[Calls for stricter UK oversight of workplace AI amid fears for staff rights](#)

The Guardian.com

16 April 2023

[Artificial intelligence: Performance management and allocation of work](#)

Bristows

4 April 2023

[AI may automate up to 300 million jobs around the world: Goldman Sachs](#)

Business Standard

30 March 2023

[Generative AI set to affect 300mn jobs across major economies](#)

(£) Financial Times

27 March 2023

[Surrender your desk job to the AI productivity miracle, says Goldman Sachs](#)

(£) FT.com

27 March 2023

[Don't fear an AI-induced jobs apocalypse just yet \(£\)](#)

The Economist

6 March 2023

[Amazon's worker surveillance "leads to extreme stress and anxiety"](#)

New Statesman

13 February 2023

[Using AI responsibly in people management](#)

CIPD

27 January 2023

[Why AI surveillance at work leads to perverse outcomes](#)

Psyche

25 January 2023

[AI has made its way to the workplace. So how have laws kept pace?](#)

OECD AI Policy Observatory

6 December 2022

[Horrible bosses: how algorithm managers are taking over the office](#)

The Conversation

11 October 2022

[Robots: stealing our jobs or solving labour shortages?](#)

The Observer

2 October 2021

[Algorithms in the workplace - People not Processes](#)

Doyle Clayton

5 May 2022

[Is AI really a paradigm shifting phenomenon for how we work?](#)

Medium.com

1 December 2021

[A closer look at AI and employment: analysis of the recent CDEI and TUC reports](#)

Robin Allen QC and Dee Masters

Cloisters

November 2020

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Further reading

1)Library/POST Briefings [2017-]

[Approved work: Skills for Data Science and Artificial Intelligence \(AI\)](#)

Parliamentary Office of Science and Technology
(to be published)

[How technology is accelerating changes in the way we work](#)

Parliamentary Office of Science and Technology
29 April 2021

[The future of work](#)

House of Commons Library Debate Pack
18 November 2020

[Artificial Intelligence and Automation in the UK](#)

House of Commons Library
21 December 2017

2)Official UK documents [2020-]

[Post-pandemic economic growth: UK labour markets](#)

House of Commons Business, Energy and Industrial Strategy Committee
21 April 2023

[A pro-innovation approach to AI regulation- consultation](#)

Department for Science, Innovation & Technology/Office for Artificial Intelligence
29 March 2023

[National AI Strategy](#)

DBEIS/DCMS/DSIT/OAI
December 2022

[The Potential Impact of Artificial Intelligence on UK Employment and the Demand for Skills](#)

A report by PwC for the Department for Business, Energy and Industrial Strategy
August 2021

3)Other Reports/Studies [2020-]

[AI in hiring and evaluating workers: what Americans think,](#)

Pew Research
20 April 2023

[Good Work Algorithmic Impact Assessment](#)

Institute for the Future of Work

28 March 2023

[Watching me, watching you: Worker surveillance in the UK after the pandemic](#)

IPPR

27 March 2023

[The Potentially Large Effects of Artificial Intelligence on Economic Growth \(Briggs/Kodnani\)](#)

Goldman Sachs

26 March 2023

[A high-level view of the impact of AI on the workforce](#)

Bruegel

March 2023

[Algorithmic transparency and accountability in the world of work,](#)

Algorithm Watch/International Trade Union Confederation

February 2023

[OECD Social, Employment and Migration Working Papers \[AI in the workplace articles\]](#)

OECD

2022-2023

[ETUC Resolution calling for an EU Directive on Algorithmic Systems at Work](#)

European Trade Union Confederation

6 December 2022

[The Impact of Artificial Intelligence on the Future of Workforces in the EU and the US](#)

European Commission/US White House

December 2022

[Adopt, adapt and improve](#)

Resolution Foundation

10 November 2022

[Sustainable algorithmic systems](#)

ILO

November 2022

[Using Artificial Intelligence in the workplace: What are the main ethical risks?](#)

OECD

July 2022

[AI and digital tools in workplace management and evaluation: An assessment of the EU's legal framework](#)

European Parliamentary Research Service
May 2022

[Artificial intelligence and work: a critical review of recent research from the social sciences](#)

Jean-Philippe Deranty and Thomas Corbin
AI & Society
2022

[When AI is the boss: a guide for union reps,](#)

TUC
December 2021

[The New Frontier: Artificial Intelligence at Work](#)

All-Party Parliamentary Group on the Future of Work
November 2021

[Dignity at work and the AI revolution: a TUC manifesto,](#)

TUC
March 2021

[Technology Managing People –the legal implications,](#)

Robin Allen QC and Dee Masters, AI Law Consultancy
Cloisters
TUC
February 2021

[Data subjects, digital surveillance, AI and the future of work](#)

European Parliamentary Research Service
December 2020

[My boss the algorithm: an ethical look at algorithms in the workplace](#)

Patrick Brione
ACAS
March 2020

4)Websites

[All Parliamentary Group on the Future of Work \[UK Parliament\]](#)

[British Academy - AI and the future of work](#)

[European Commission – The Artificial Intelligence Act](#)

[Gov.uk – artificial intelligence](#)

[Institute for the Future of Work – The Lab](#)

[OECD Artificial Intelligence Policy Observatory](#)

[Office for Artificial Intelligence \[UK\]](#)

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