

Briefing Paper

What drives UK firms to adopt Al and robotics, and what are the consequences for jobs?

September 2023







C	ontents	
Summary and headline findings		03
1.	Understanding technology adoption	05
2.	Survey methodology	07
3.	Main findings	10
	Headline survey findings	10
	Analysis for technology adoption - physical tasks	11
	Analysis for technology adoption - cognitive tasks	12
	Analysis on work outcomes - impact on jobs	13
	Analysis on work outcomes - impact on positions	14
	Analysis on work outcomes - impact on skills	15
	Analysis on work outcomes - impact on job quality	16
4.	Conclusions	17
5.	Key Policy Implications	19

Institute for the Future of Work

The Institute for the Future of Work is an independent research and development institute exploring how new technologies are transforming work and working lives. We develop practical solutions to promote people's future wellbeing and prosperity. Co-founded by former employment barrister Anna Thomas, Nobel prizewinning economist Professor Sir Christopher Pissarides and technologist Naomi Climer CBE, we work at the intersection of government, industry and civil society to shape a fairer future through better work.

www.ifow.org

Acknowledgements

This briefing paper was prepared for the Pissarides Review into the Future of Work and Wellbeing, led by Professor Sir Christopher Pissarides (Institute for the Future of Work and London School of Economics). We gratefully acknowledge financial support from the Nuffield Foundation. The Pissarides Review into the Future of Work and Wellbeing is a collaboration between the Institute for the Future of Work (IFOW), Imperial College London and Warwick Business School. The views expressed herein do not necessarily reflect the views of the Nuffield Foundation, nor those of the Institute for the Future of Work.

Nuffield Foundation

The Nuffield Foundation is an independent charitable trust with a mission to advance social wellbeing. It funds research that informs social policy, primarily in Education, Welfare, and Justice. It also funds student programmes that provide opportunities for young people to develop skills in quantitative and scientific methods. The Nuffield Foundation is the founder and co-funder of the Nuffield Council on Bioethics, the Ada Lovelace Institute and the Nuffield Family Justice Observatory. The Foundation has funded this project, but the views expressed are those of the authors and not necessarily the Foundation.

www.nuffieldfoundation.org

Citation

Briefing Paper - What drives UK firms to adopt Al and robotics, and what are the consequences for jobs? Institute for the Future of Work, September 2023.

DOI: 10.5281/zenodo.8308061

Permission to share

This document is published under the Creative Commons Attribution Non Commercial No Derivatives 4.0 International Licence. This allows anyone to download, reuse, reprint, distribute, and/or copy IFOW publications without written permission subject to the conditions set out in the Creative Commons Licence.

For commercial use, please contact team@ifow.org

Summary

Dramatic, speculative headlines about artificial intelligence (AI) and autonomous robots eliminating jobs have occupied the media with increasing frequency and are crowding the policy landscape. While the focus has been on the impacts of AI on the labour market, less research addresses how choices about the design, development and deployment of technology impact quality of work, demand for skills and the creation of new jobs.

This briefing outlines the findings of a survey of over 1000 UK firms (coupled with multiple secondary sources) that attempted to understand what influences AI adoption, and what causes different work outcomes as a result of their adoption.

Forming part of the Pissarides Review into the Future of Work and Wellbeing, funded by the Nuffield Foundation, the findings here support research from other workstreams that - though we are at a critical juncture - the outcome of this technological transformation is not yet determined and that a future where innovation and social good advance together is achievable.

This study suggests that **urgent action is required** because the scope and pace of automation is now so great across firms of different size, while results are variable.

Governments, employers and employees must all be active agents. If handled poorly, the evidence presented here is that **the new opportunities presented by automation will be missed and existing regional inequalities could be exacerbated**. Rather than reaping the benefits of automation, this could lead to serious erosions of job quality, with the other negative impacts that may bring.

A new policy focus on 'good automation' and building an environment in which good work can be created should help generate the best outcomes.

For Government, significant investment above current regional averages is needed to improve 'readiness levels', governance regimes are required to ensure that impacts are assessed and firms incentivised to adopt technologies in ways that are associated with better work outcomes.

For employers and employees, the adoption of, and engagement in, a **Human Resource**Management (HRM) philosophy with high-involvement practices will unlock a positive attitude to technology adoption and the perceived benefits of AI, opening the way to better range of work outcomes including the creation of new jobs, augmentation of human skills and improvement in work quality.

Headline Findings

Survey respondents were senior executives from firms with more than 20 employees across various sectors who had responsibilities for adoption of new technologies, and management practices for human resources.

Headline findings from the survey include that, in the past three years:

- 79% of firms report adopting new technology to undertake a physical task, and the same proportion report adopting to undertake a non-physical / cognitive task.
- Small and medium-sized firms are deploying technologies to automate cognitive tasks at the same rate as larger firms.

For those firms reporting that they have adopted these technologies:

- the net impact on job creation is positive.
- the net impact on skills is positive.

Going into greater depth on the question of what influences AI adoption, and the impacts on jobs and job quality, the study demonstrates that:

- variations in innovation readiness across UK regions significantly alter the relationship between technology adoption and work outcomes
- high levels of readiness are associated with more positive outcomes.

Policymakers are naturally concerned that the latest round of technological change may further exacerbate regional inequalities. The evidence presented here suggests:

- this outcome is more likely without investments in education and connectivity infrastructure.
- Without such investments, results suggest that it is likely that AI adoption in low-readiness regions will be particularly detrimental to job quality.

Furthermore, if the goal is to increase the number of jobs and raise skill levels across the workforce, then the evidence suggests that readiness levels significantly above current averages are needed.

The study also shows that Human Resource Management (HRM) philosophy with high-involvement practices that look to invest in workers contributes to successful technology adoption through their influence on the identification, understanding, and perceived benefits of AI.

If we want to enhance positive outcomes, management philosophy with respect to human resources really does matter, as does investment in education and infrastructure.

Understanding technology adoption

Technology adoption is not a single decision but involves multiple stages: initiation (becoming aware of an innovation, forming an attitude towards it and evaluating it) is followed by the decision to adopt, and then by implementation - which will typically include trials and sustained implementation.

There are multiple factors that impact adoption. Key to this study is the idea that *perception* of technology is central to the adoption decision, and the work outcomes that come from this. Other factors that can impact perception and adoption include the HR philosophy within an organisation, the size of the organisation, external factors such as market conditions, and enabling factors concerning infrastructure and workforce skills.

Technology perception encompasses beliefs about the desirability and feasibility of adoption, as well as its intended purpose. Desirability reflects the perceived usefulness, or whether individuals perceive that a given technology will help them perform their job better. Feasibility relates to issues of complexity and compatibility, and is determined by whether there are sufficient financial resources to be able to afford the new technology, and perceived future development or running costs. It also includes having the technological sophistication to support the management and use of the new technology.

Beyond these individual and organisational factors, prior studies have demonstrated that high-involvement Human Resource philosophy and management is supportive of the implementation of advanced process technologies. Similarly, evidence has demonstrated that it is when combined with more sophisticated management practices, organisations obtain higher returns from investments in advanced information technologies. This study focuses on a subset of those practices most relevant to the technology perceptions at the centre of the conceptual model: training, information sharing, consulting with employees about technology, and empowerment.

Size of firm is another factor in adoption, supported in numerous studies. Smaller firms tend to lack the financial resources necessary for the investigation, experimentation, development, and utilisation of new technologies. Innovation of all types tends to benefit from a long-term orientation, and yet smaller firms often face financial constraints, forcing them to prioritise short-term objectives.

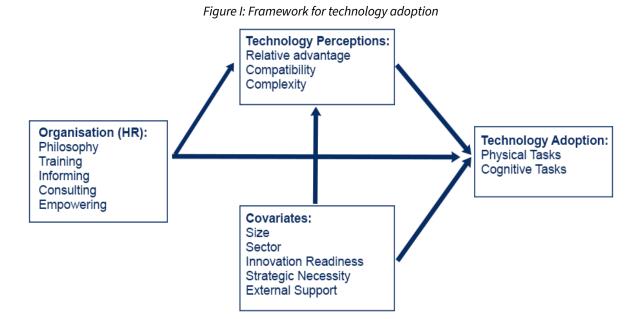
External environmental considerations (e.g., product market competition; needs of customers or trading partners) can act as potential influences on adoption decisions. The presence of supportive external institutions such as trade associations, universities and unions offer opportunities for collaboration, knowledge exchange through social networks, training, and more generally as sources of knowledge and support for technology adoption.

In addition, two sets of enabling factors - human capital investments and connectivity infrastructure which together comprise 'Regional Innovation Readiness' are particularly relevant to technology adoption.

The ability of firms to successfully implement new technologies depends on their access to a well-qualified, motivated, and agile workforce. Technology development and adoption thrive best in environments that provide the right conditions for firms and people to make the best use of advanced technologies. To the extent that an organisation operates in a region with substantial investments in education, and in which the workforce is better

educated and has opportunities for continuous learning, this can support the adoption of technology in ways which complement rather than substitute for tasks and jobs. Thus, in regions exhibiting higher investments in education, there is an incentive for technology implementation strategies that result in net job creation, skill enhancement, and positive impacts on job quality.

Finally, the presence of connectivity networks and infrastructure, including the penetration of high-speed internet and broadband services and the coverage of 4G mobile networks, are key factors in adoption. They support a variety of social, economic and developmental goals and enable the adoption of new technologies in a way that contributes to effective enhancement of productivity.



2. Survey methodology

The survey was conducted in the first months of 2023 through a combination of telephone interviews and online surveys. To ensure that there would be some formal management practices within the organisation, a lower limit of 20 employees. In addition, firms were selected across all industry sectors following the 19 sections of the UK SIC hierarchy.

Survey respondents were CEOs, COOs, CTOs, CHROs and equivalent senior executives who could answer affirmatively a screening question "Do you have responsibilities which will allow you to answer questions relating to the adoption of new technologies, and your management practices for your human resources?"

Technology adoption was measured by asking if, in the last three years AI, robotic or automated equipment had been introduced to undertake a) a physical task and b) a non-physical task. Those responding affirmatively to one or both questions were then asked:

- 1) "Has the introduction of new technology created any new jobs in your organisation?"
- 2) "The introduction of new technology has eliminated or reduced the need for some skills"
- 3) "Overall, has the introduction of AI, robotic or automated equipment led to more or fewer positions?" ('a lot more' (5); 'a few more' (4); 'no change' (3); 'a few less' (2); 'a lot less' (1).

To assess the impact on Job Quality, interviewers explained the factors involved (pay, hours, doing interesting and meaningful work, having opportunities for personal development, and being able to have a say about issues in the workplace) and asked respondents what they thought the overall impact would be, following up with a probe if the answer was better/positive, "very much (5) or a little (4)?" if the answer was worse/negative, interviewers probed "a little (2) or a lot (1)?"

Using work developed by Moore and Benbasat (1991), a measure of technology perceptions was calculated using a five-point Relative Advantage scale and focusing on three perceived qualities of these technologies - Usefulness, Compatibility and Complexity. These questions were modified with the wording of 'enables us' for adopters and 'would enable us' in the case of respondents who had not (or not yet) adopted the technology. Perceived Usefulness included, "Using the AI/Robotic Automation enable(s) us to accomplish tasks more quickly"; "...enable(s) us to improve quality"; "...make(s) it easier to perform important production/ service or administrative tasks". Perceived Compatibility of the technology was measured with three items: "Using the AI/Robotic Automation... (would) fit(s) well within our operations"; "...fit(s) well with our work style"; "...is/would be compatible with all aspects of our activities." Perceived Complexity of the technology was measured with three items: "AI/Robotic Automation... is/would be easy to apply and implement for our use case"; "...is/ would be easy to learn how to operate"; "...overall is/would be easy to use."

Regional Innovation Readiness was measured using data from IFOW's recently created and forthcoming Disruption Index (see Table I) and reflects the equally weighted human capital

and infrastructure dimensions expected to provide important resources that can support the adoption and implementation of innovative new technologies in the workplace.

Human Resource Management philosophy and practices were probed using questions taken from relevant studies like the Workplace Employment Relations Survey, taking in questions on employee consultation, workforce training and development.

These different factors were analysed to establish internal consistency of results, which are summarised in Table II. A confirmatory factor analysis of the Human Resource Management items suggested that it was statistically valid to aggregate them into a measure labelled 'High-Involvement HRM'. Similarly, items for technology adoption were able to be aggregated to a measure labelled 'Technology Perceptions'.

Table I: The Dimensions and Indicators Contributing to the Regional Innovation Readiness Index

Dimension	Sub-dimension	Indicators
		Overall levels % with NVQ4+
	Basic skills	GCSE attainment
		Pupil-teacher ratio funded schools
	la cata antina di cation	Government investment in education (total)
	Investment in education	Government investment in education per pupil
Human Capital		ICT apprenticeships
	Post-secondary education	Enrolment in tertiary education
		Number of postgraduates
	Adult advastice	Lifelong learning
	Adult education	On the job training
	M-ul-f	LF participation rates
	Workforce composition	Working age population
		4G mobile coverage
la fara et un et une	ICT	Internet download speed
Infrastructure	ICT	Ultrafast internet availability
		Number of internet users

Table II: Internal Consistency Reliability

Scale	Cronbach's Coefficient Alpha
Relative Advantage (5 items)	0.834
Compatibility (3 items)	0.801
Complexity (3 items)	0.819
Strategic Imperative (3 items)	0.745
External Support (2 items)	0.632
HR Philosophy (3 items)	0.746
HR Inform (3 items)	0.698
HR Consult (3 items)	0.714
HR Train (6 items)	0.825
HR Empower (7 items)	0.804
Technology Perceptions (Combined 11 items)	0.911
High Involvement HRM (Combined 22 items)	0.928

3. Main findings

Headline survey responses

In the sample of 1012 respondents:

- 79.2% reported affirmatively that their organisation had adopted AI, robotic, or automated equipment to undertake a physical task.
- 78.8% reported that their organisation had adopted AI, robotic, or automated equipment to undertake a non-physical or cognitive task.

The overall picture suggests that around 80% of UK firms have adopted AI, robotic or automated equipment in the past three years, with a similar proportion for physical or cognitive tasks.

Of the 864 organisations that have adopted at least one of the new technologies:

- 78% report that new technology has created new jobs.
- 55.3% report that new technology has **eliminated or replaced jobs**.

Since any particular job role may have many or few instances, it is instructive to assess the impact on positions as well as jobs. Of the respondents adopting technology:

- 66.6% report that the introduction of the new technology has **created new positions**.
- 47.2% report that it has eliminated positions.
- 83% report that new technology has increased the need for new skills.
- 53.9% report that the technology has **reduced the need for some skills**.

The overall picture is indicative of **net positive effects on both job creation and skills.**

Turning to job quality, of the 864 respondents adopting technology,

- 69.3% report that they believe that job quality is improved a little (48%) or a lot (21.3%).
- 21.3% expected **no change**.
- 4.9% believe that job quality is reduced by a little (4.4%) or a lot (0.5%).

The overall picture leans towards **net positive effects on job quality.**

Analysis for Technology Adoption

1. Physical Tasks

Favourable Technology Perceptions are found to be positively associated with technology adoption for physical tasks. When accounting for industry sectors, firms in manufacturing, construction, transportation and storage, information and communication, financial, scientific and technical activities are more likely to have positive Technology Perceptions.

While the size of an organisation was not found to influence technology perceptions, larger organisations were found to be more likely to adopt technologies for physical tasks.

In organisations where there are more favourable Technology Perceptions, the adoption of AI and robotic technologies for physical tasks is seen as more of a Strategic Necessity. Similarly, the availability of External Support for AI technology is positively associated with more favourable Technology Perceptions.

The presences of HRM itself does not drive Technology Adoption. However, HRM is significantly associated with Technology Perceptions, indicating that perceptions mediate this relationship.

Results suggest that a unit change in Technology Perceptions increases the probability of Technology Adoption by more than 4 times, all else equal.

2. Cognitive Tasks

Focusing on cognitive tasks, results show that favourable Technology Perceptions are significantly positively associated with adoption. However, no significant differences are observed across sectors. Organisation size is not an important factor for differentiating adopters and non-adopters of AI technologies.

As with Physical Tasks, in organisations where there is more favourable Technology Perceptions, the adoption of AI for cognitive tasks is seen as more of a Strategic Necessity. Similarly, the availability of External Support for AI technology is positively associated with more favourable Technology Perceptions.

HRM by itself does not impact Technology Adoption for cognitive tasks. As with Physical Tasks, it is only when Technology Perceptions are more favourable that HRM does become a significant driver of adoption.

Results suggest that a unit change in Technology Perceptions increases the probability of Technology Adoption for cognitive tasks by around 3 times.

Analysis of Technology and Work Outcomes

In this second part of the analysis, only those firms which report having adopted AI and robotic technologies are included. The aim of this is to understand how different moderating variables interact with the aggregated measure 'Technology Perceptions' (see Table II) and whether these contingencies explain differences in outcomes around, for example, job quality or net impact on jobs.

In this analysis, the framework is modified (see Figure 2), so that now the mediating impact of Regional Innovation Readiness on individual Work Outcomes - the net impact on jobs, positions, skills and overall job quality - can be understood.

Technology Perceptions: Moderator: Relative advantage Innovation Readiness Compatibility Complexity Work Outcomes: Organisation (HR): Net impact on jobs Philosophy Net impact on positions Training Net impact on skills Informing Overall job quality Consulting Empowering Covariates: Size Sector Innovation Readiness Strategic Necessity External Support

Figure 2: Framework for Work Outcomes, moderated by Regional Innovation Readiness

The moderation effect for each Work Outcome is analysed using regression models. Full data and technical details of methodologies are explained in the full report, and the accompanying technical report.

These calculations have been illustrated using a simple slopes analysis (see Figures 3a - 3d). Here, the association between the mediator - the aggregated measure of Technology Perceptions - and the outcome in question - Net Impact on Jobs, for example - is compared for three levels of the moderator, Regional Innovation Readiness, at the sample mean value, at one standard deviation above the mean, and one standard deviation below the mean. This allows conclusions to be drawn about the extent to which Technology Perceptions are associated with different Work Outcomes, for different levels of Regional Innovation Readiness.

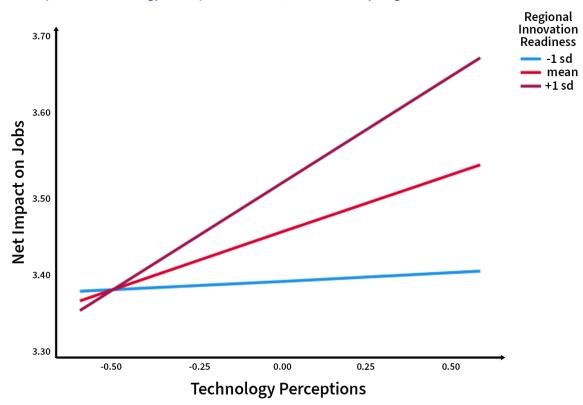
The moderating impact of the aggregated measure 'Human Resource Management' is then analysed to understand how this might be moderating the relationship between Technology Perceptions and a Work Outcome - for example, Net Job Creation.

1. How Technology Perceptions and Regional Innovation Readiness impact Jobs

In this first analysis, the net impact of Technology Perceptions on the number of jobs is considered for different levels of Regional Innovation Readiness:

Figure 3a

Net Impact of Technology Perception on Jobs, moderated by Regional Innovation Readiness



As the measure of Regional Innovation Readiness strengthens, increases in Technology Perceptions are seen to have a more pronounced positive Net Impact on Jobs.

Technology Perceptions is positively associated with net job creation, **but only when Regional Innovation Readiness is high.**

HRM is also found to have a significant effect on the Net Impact on Jobs, and a significant effect is observed on the interaction of Technology Perceptions and HRM on Jobs too.

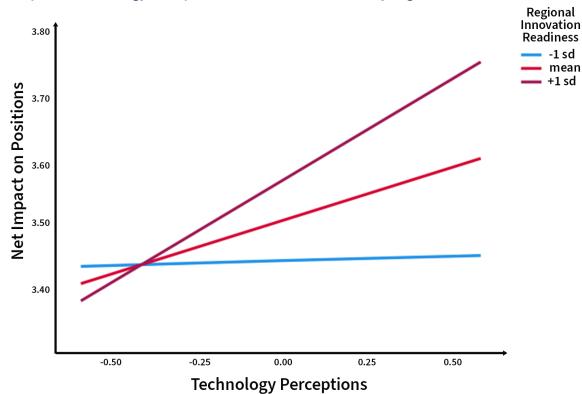
HRM not only moderates the relationship between Technology Perceptions and net job creation, but also acts as a precursor of Technology Perceptions: more engaged HRM leads to better Technology Perceptions, which - when Regional Innovation Readiness is high - is associated with net job creation.

2. How Technology Perceptions and Regional Innovation Readiness impact Numbers of Positions

In this second analysis, the net impact of Technology Perceptions on the Number of Positions is considered for different levels of Regional Innovation Readiness:

Figure 3b

Net Impact of Technology Perception on Positions, moderated by Regional Innovation Readiness

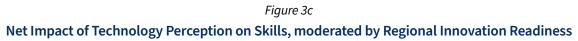


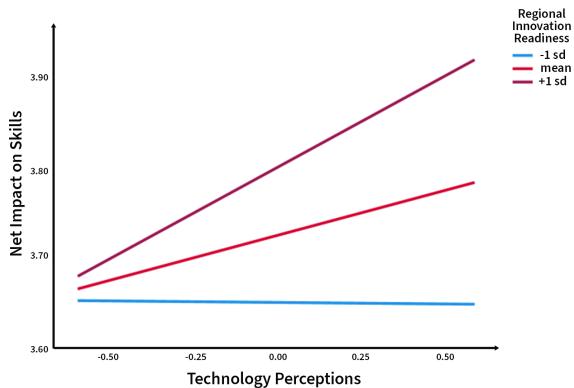
Closely mirroring the picture with Jobs, as the measure of Regional Innovation Readiness strengthens, increases in Technology Perceptions are seen to have a more pronounced positive Net impact on Positions.

The association between Technology Perceptions and Net Impact on Positions is significantly more positive when Regional Innovation Readiness is high.

3. How Technology Perceptions and Regional Innovation Readiness impact Skills

In this third analysis, the net impact of Technology Perceptions on Skills is considered for different levels of Regional Innovation Readiness:





As with Jobs and Positions, as the measure of Regional Innovation Readiness strengthens, increases in Technology Perceptions are seen to have a more pronounced positive Net Impact on Skills.

The association between Technology Perceptions and Net Impact on Skills is significantly more positive when Regional Innovation Readiness is high.

HRM is also found to have a significant effect on the Net Impact on Skills, and a significant effect is observed on the interaction of Technology Perceptions and HRM on Skills too.

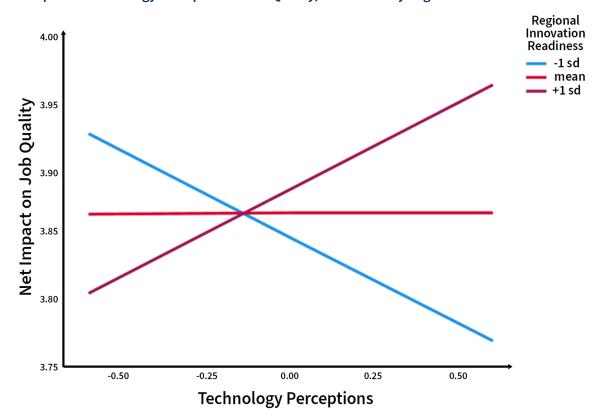
HRM not only moderates the relationship between Technology Perceptions and Skills, but links with Technology Perceptions: more engaged HRM leads to better Technology Perceptions, which - when Regional Innovation Readiness is high - is associated with a more positive Net Impact on Skills.

4. How Technology Perceptions and Regional Innovation Readiness impact Job Quality

In this final analysis, the net impact of Technology Perceptions on Job Quality is considered for different levels of Regional Innovation Readiness:

Figure 3d

Net Impact of Technology Perception on Job Quality, moderated by Regional Innovation Readiness



More sectoral differences are observed here than any other outcomes, suggesting that there is greater sectoral variation with respect to the impact of AI on job quality.

More striking about this slope analysis is that when Regional Innovation Readiness is below the mean, the association between Technology Perception and Job Quality is *negative* while, when Regional Innovation Readiness is high, the association is positive.

When Regional Innovation Readiness is high, the adoption of automation technologies is associated with a positive impact on job quality.

When Regional Innovation Readiness is low, the adoption of automation technologies is associated with decreases in job quality.

In summary, these analyses support the hypotheses that HRM and Regional Innovation Readiness are significant moderators of the association between technology adoption and work outcomes.

4. Conclusions

There is a long history of research on the adoption and diffusion of new technologies. This indicates potential downsides of any form of technology automation: loss of control over the pace of work undermining physical and mental wellbeing, jobs becoming more routine, workers subjected to even closer supervision and disrupted social relations. We are still learning whether, or when, AI and automation may have a positive or negative impact on important work outcomes.

This study contributes to this discussion by extending analysis of the impacts of technology adoption by including job quality in addition to the net impact on jobs, positions and skills. It also provides evidence for contingencies which moderate the relationship between technology adoption and these work outcomes. This evidence is not only relevant to advancing our theoretical understanding but has significant practical, policy-related implications.

History also tells us that technology alone does not determine outcomes for work and workers. Neither the implementation of technology nor its impacts on jobs, work and workers are deterministic but are themselves a function of managerial and social choice.

This study supports this perspective and adds evidence for the role of HRM in driving the thoughts and choices that go into technology adoption decisions. By placing perceptions of technology at its heart, it builds beyond earlier studies by encompassing both organisational and environmental factors that impact the decision to adopt AI. Doing so extends current understanding of how 'high involvement' HRM influences these perceptions of technology, and how HRM practices may be a significant influence on organisational innovation and adaptation.

Evidence is presented that technology perceptions are significantly and positively associated with an organisation's investments in its human resources and people, in the shape of High Involvement HR philosophy and associated HR practices. Furthermore, it demonstrates that perceptions of technology mediate the relationship between HRM and technology adoption. These relationships hold even after including other significant organisational and environmental variables.

Past studies have suggested that AI has a positive impact on skills where the AI is used to augment work (supporting a job holder's discretion for further action) but a negative impact on skills where AI automates significant tasks (leading to the job holder taking instructions, orders or directions from the AI system.) These results suggest that choice about whether to disrupt or complement human labour is significantly influenced by two factors: Regional Innovation Readiness and an organisation's HR philosophy and practices in both adoption and implementation.

The work on Regional Innovation Readiness suggests that the environment provides a set of enabling resources that incentivise organisations to adopt new technologies. When these resources are available they create social and economic incentives to implement new technologies in ways which create jobs and positions, augment skills, and enhance job quality.

On the other hand, the absence of those enabling resources serves as a contingency which reduces the likelihood that new jobs and skill demands are created. The most extreme result in the study suggests that when Regional Innovation Readiness is markedly below average, AI adoption is more likely to exert a negative impact on the quality of jobs.

This result has major policy implications. As with many other countries, in the UK a chief political and social concern lies with the observed regional inequalities with respect to wealth and inclusion. Policymakers are naturally concerned that the latest round of technological change may further exacerbate these inequalities. The evidence presented here suggests that this outcome may be very likely without interventions, most likely by the state or local governments.

While there will be other factors beyond human capital and infrastructure, what this study shows is that without enhancements Regional Innovation Readiness via investment in education and digital connectivity, it is likely that AI adoption in low-readiness regions will be particularly detrimental to elements within. Furthermore, if the goal is to increase the number of jobs and raise skill levels across the workforce, then 'readiness levels' significantly above current averages are needed.

The second aspect concerns an organisation's HR philosophy and practices in both adoption and implementation. This study provides evidence that 'High Involvement' HRM can be expected to impact the successful identification, selection, adoption, and implementation of new technologies, but that this orientation also moderates the impact of technology adoption on work outcomes.

There is evidence that in many cases, new technologies can enhance job quality. For example, by improving access to data and information and communication, creating new activities, and simplifying interactions between colleagues, use of the internet can increase job satisfaction. Often, the positive effect is driven by increases in productivity, job satisfaction and perceived meaning of work, as low-value menial, routine tasks are phased out. There are also potential negative impacts associated with changes in time use and increased stress from digitalisation. Here, these observations are built upon with quantitative data to show that positive outcomes for job quality are contingent upon both HRM philosophy and practices, and the presence of enabling resources in the organisational environment.

An unexpected finding is that organisational size was not significant for the adoption of AI for cognitive tasks: both large and small firms are willing and able to adopt the technology. This may reflect the relative ease of integration with existing processes for cognitive as opposed to physical tasks. By an accident of timing, the survey pre-dated the public availability of ChatGPT by just a few weeks so it is likely that further impacts are only just emerging now in practice (and further research focused exclusively on this would be beneficial.)

Either way, the unexpected finding of organisational size being insignificant for adoption of AI for cognitive tasks may carry significant implications for the rapid diffusion of AI technologies across the entire economy and, in combination with the findings concerning the impacts on job quality for regions with lower readiness scores, further raising the stakes for policymakers.

5. Key Policy Implications

This study is part of the <u>Pissarides Review into the Future of Work and Wellbeing</u>, which is ongoing. Policy implications are subject to review and recommendations will be made at the completion of the project.

This study suggests that the potential benefits of AI and automation technologies could be wider in scope and pace than previously thought, with SMEs automating cognitive tasks at the same rate as larger firms. But risks are also greater, including job loss and the erosion of work quality, which can be exacerbated by regional inequalities. This invites urgent policy intervention aimed at ensuring that risks are anticipated and opportunities harnessed across the country.

The evidence encourages a new policy focus on creating both the organisational and environmental conditions for 'good automation' to maximise and distribute the benefits of AI and automation technologies. Good automation should augment people's skills and capabilities, create new jobs, and improve work quality.

Policymakers should pay much more attention to the dynamics of organisational and environmental factors, drivers and mediators of good automation. This takes previous work on 'socio-technical' approaches to a new level and invites further research to ensure that decisions about automation are contextualised in its socio-economic environment and can be more effectively directed to address local policy challenges.

At firm level, high-involvement practices - including higher levels of information sharing and workforce engagement - are outstanding in moderating good work outcomes and should be strongly promoted. Eliciting the views of workers can change perceptions about technology which suggests that a diversity of voices in technology adoption may improve outcomes further.

At the regional level, building innovation readiness needs particular attention because this significantly alters the relationship between technology adoption and work outcomes. Policymakers should pay heed to the potential role of AI and automation technologies in reducing or exacerbating regional inequalities, including access to good work.

Policy attention on the technical capabilities of AI must urgently be expanded to consider the socio-economic context in which it is designed, developed and deployed. AI should not be considered in a silo, or in isolation from other automation technologies. Impacts on work and workers, which are widespread and growing, should be a priority.

Good governance of AI and automation technologies demands a systematic, sociotechnical approach to ensure pre-emptive evaluation and careful response to the types of impact revealed in this study. This should be combined with ongoing monitoring, so that emerging and unexpected impacts can also be brought to the surface.



Automation technologies are transforming work, society and the economy in the UK in ways comparable to the Industrial Revolution. The adoption of these technologies has accelerated through the COVID-19 pandemic, and the impact of automation is unevenly distributed, with a disproportionate impact on demographic groups in lower pay jobs.

The Pissarides Review into the Future of Work and Wellbeing will research the impacts of automation on work and wellbeing, and analyse how these are differently distributed between socio-demographic groups and geographical communities in the UK.

For more information on the Review, visit: pissaridesreview.ifow.org

If you have a professional or research interest in the subject of the impact of automation technologies on work and wellbeing and have insights to share, please contact Abby Gilbert, Director of Praxis at the Institute for the Future of Work at abby@ifow.org

If you are a member of the press and have an enquiry or would like to receive new press releases by email, please email Kester Brewin, Senior Communications Manager at the Institute for the Future of Work at kester@ifow.org