



Centre for
Decent Work
and Industry

*Submission to The Inquiry into the Digital
Transformation of Workplaces*

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June 2024



Submission to the House of Representatives Standing Committee on Employment, Education and Training

Inquiry into the Digital Transformation of Workplaces

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Introduction

Driven by rapid technological developments, work is changing in new and uneven ways, raising pressing and complex questions around how we define, create and organise inclusive and sustainable work and workplaces now and in the future. Supported by the Centre for Decent Work and Industry, the authors of this submission directly address these complex challenges through theoretically-informed and evidence-based research. Our research engages with current and emerging themes in the future of work. This includes corporate social responsibility; work in the gig economy; the work implications of technology, automation, and artificial intelligence (AI); and unpaid, precarious and contingent work. The Centre's research and engagement across a wide range of industry, organisational and workplace contexts directly intersects with the terms of reference of the Inquiry into the Digital Transformation of Workplaces.

The Inquiry seeks to understand the implications of the rapid development and uptake of automated decision-making (ADM) and machine learning techniques in the workplace, yet empirical data on the use of ADM in an employment context is only beginning to emerge. In addressing the terms of reference of this Inquiry, we draw from our published research and emerging findings from current research projects that address the evidence gap in Australia. Sources include peer-reviewed journal articles, keynote addresses for industry and practitioners, a Briefing Paper series on technological changes impacting work and the labour market, and research reports funded by government and industry.

In particular, the submission is informed by current research funded by an Australian Research Council Discovery Early Career Research Award (DECRA) 2023-2026 (DE230100950) awarded to Associate Professor Penny Williams. This program of research includes Master of Philosophy (MPhil) research undertaken by Danae Fleetwood, that analyses the regulation of AI-enabled surveillance and monitoring technology and a survey of HR professionals conducted in collaboration with the Australian Human Resources Institute (AHRI). The survey, which is currently in the field, will reveal the HR activities that are being automated, and provide insights into HR professionals' proficiency with and views on AI and ADM. We also provide additional evidence from other published Australian and international research.

The following submission first presents an overview of the rise of ADM in Australian workplaces, highlighting the complexities that arise from the wide scope and rapid development of available technologies. The submission then presents evidence and recommendations to directly address the following terms of reference:

- (a) Benefits for productivity, skills development, career progression and job creation;
- (c) the risks, opportunities, and consequences for the nature of work, including effects on hiring, rostering, work intensity, job design, wage setting, monitoring, surveillance and job quality;
- (d) the effects of these techniques on the scope of managerial prerogative, labour rights, ability for workers to organise, procedural fairness, equality, discrimination, and dignity at work;
- (e) appropriate safeguards or regulatory interventions to guide responsible implementation in the workplace, including the digital skills and resources necessary for employers to appropriately utilise these technologies;

(f) the effects on gender equality, job security, small businesses, Closing the Gap and disadvantaged and vulnerable cohorts of workers.

Summary of Recommendations

Our submission presents ten recommendations that relate to research and education to improve the ethical use of ADM; the protection of employee rights and mitigation of risks; encouraging transparency in ADM; and addressing governance and regulation of ADM.

1. Invest in studies which can reliably measure over time: (i) the extent of proliferation of ADM; (ii) the people management functions of ADM; and (iii) the consequent impacts of ADM, in different industries and workplaces across the Australian labour market.
2. Review and continuously update the Commonwealth Ombudsman’s Automated Decision-making Better Practice Guide. Support organisations, via tailored, context-sensitive training and tools, to develop the necessary skills to assess the benefits and risks of ADM technologies within their workplace.
3. Facilitate and fund training for industry to increase capacity in the ethical use of ADM people analytics. Training could be administered through professional associations such as the Australian Human Resources Institute (AHRI) to grow capability in the HR profession to utilise and interpret data.
4. Support Australian universities to grow organisational capability by developing curriculum in undergraduate and postgraduate courses. Business/HRM courses should explicitly include AI, machine learning (ML) and analytics (including people analytics), in addition to the regulatory and ethical aspects of ADM. The latter focus should also be included in higher education offerings in mathematics, software engineering and AI/ML related qualifications.
5. Address health and safety risks associated with ADM by (a) investing in research on the health, safety and wellbeing implications of ADM; and (b) tasking Safe Work Australia with the development of a Code of Practice which identifies and addresses the specific safety risks associated with ADM.
6. Require employers to retain human oversight of automated decisions related to the performance and dismissal of workers. Formulate and disseminate guidelines for employers on the use of ADM to assess worker performance, including how to establish fair and equitable time/completion benchmarks in ADM scheduling systems, especially where equity concerns are relevant.
7. Require higher levels of transparency in automated recruitment systems: Establish a requirement that employers must advise all candidates when they are participating in an automated hiring process and provide candidates with an avenue to seek feedback on their application. Require all ADM systems used in recruitment and selection to identify and mitigate inbuilt biases by including an audit or reporting process whereby employers can review both selection and rejection/screen out decisions by key diversity characteristics.
8. Improve the legal framework associated with ADM. Consider several approaches that are available to protect workers and establish the legal obligations of employers relating to the collection, use and storage of data. These include harmonising and modernising surveillance laws, enhancing employee protections under the Privacy Act 1988 (Cth), amending the Fair Work Act 2009 (Cth), or creating a new, fit-for-purpose statute to address legislative gaps.
9. Adopt regulatory intervention that takes a risk-based approach. The level of automation, invasiveness and outcomes of the ADM should be core features that govern compliance expectations. Transparency, consent and consultation should be amongst the regulatory outcomes.
10. Provide improved education opportunities for relevant actors in the employment relationship regarding the risks and opportunities of ADM to support self-regulation and best practice, in order to capitalise upon the benefits associated with the use of ADM.

Overview: The Proliferation of Automated Decision-making in the Workplace

The automation of tasks and even whole jobs is not new. For decades, technology has been used to support managers to achieve greater levels of productivity from their workforce. However, by automating not just tasks but decisions that were once made by human supervisors, emerging technologies and, in particular, Artificial Intelligence (AI), are enabling significant changes in how work is organised and how the employment relationship is managed.

Automated decision making (ADM) “involves a range of processes, from aids for human decision-makers to completely automated decision-making processes, across a wide variety of contexts” (Araujo et al., 2020, p. 612). An algorithmic system may influence the direction, evaluation or discipline of decisions and be classified as conditional, high or full automation, subject to the level of human intervention (Wood, 2021). Algorithmic systems that facilitate ADM are being integrated into a wide range of human resource management practices, providing many organisational and productivity benefits, as well as the risk of unintended consequences for workers, which we outline in this submission.

Scope of automation

In recent years, vendors selling people management technologies with ADM capabilities, globally and in Australia have reported significant increases in sales during and post-pandemic (Schaupp, 2023; Thomspson & Molnar, 2023; Marks 2021; Migliano 2023). For example, Hubstaff saw a 200% increase during 2020 while Controlio reportedly tripled their sales. Technology review site Capterra estimates that in 2020, 59% of the Australian SMEs were using new employee monitoring and optimisation software, while research by Diversity Council Australia and Monash University (2022) suggests that 1 in 3 Australian employers are using AI during the recruitment process. Hence, technology companies are increasingly shaping the organisation of work, norms of privacy, access to information and freedom of expression, as set out in terms of service for billions of workers and software users worldwide, with significant consequences for labour markets (Krasodowski 2024).

The variety of available technologies to manage work and workers has expanded, as has their capabilities and application to many people management or human resource (HR) functions. ADM can involve the obvious replacement of human decision-makers, usually supervisors, or it can involve more subtle forms of monitoring, nudging and system-generated decision-making that guide the minutiae of how work is done, including who might be hired or retained to do that work. Research to date has largely focussed on the use of ADM to manage contracted workforces in retail and service industries, transport and logistics organisations, and to manage domestic and hotel cleaning staff (Mateescu & Nguyen, 2019; Wood, 2021). Recent news reports indicate a rise in industries such as insurance, banking and finance (Sharples, 2023 and Tan, 2023), but there is very little empirically robust data that measures the extent to which ADM is used to manage workers in Australia.

Frequently used to schedule tasks and optimise worker productivity (Cappelli & Rogovsky, 2023), technologies now exist to automatically take screenshots from employees’ remote computers; track keystrokes; analyse emails, tone of voice and facial expressions; audio record conversations; prompt workers to stay on task or take breaks; and even monitor the sleep habits of workers (Aloisi & Gramano, 2019; McDonald et al., 2024; Saner, 2018). Kickidler, for example, monitors employee’s computers and sends automatic violation notices when employees are late, idle, absent or unproductive. Amazon Flex uses technology to automate the termination of workers (Hanley & Hubbard, 2020). Recruitment technologies also use AI to automatically screen, assess and shortlist job candidates, making selection decisions that were previously undertaken by human recruiters.

Measuring the extent of ADM in Australia is difficult, in part due to the diverse labelling of related technologies as (for example) tracking devices, workplace surveillance, workforce optimisation, productivity management or simply AI, and the wide scope and opacity of technological functions. A technology, for example, may provide enterprise business analytics, but also team collaboration tools, remote individual employee monitoring, time/productivity tracking, task allocation, and performance optimisation tools. Some of these functions may simply generate reports for human managerial oversight, while others may incorporate automated supervisory functions. This, coupled with the pace of technological development, makes it more difficult to define ADM and identify invasive use of software (Baiocco et al., 2022; Jarrahi et al., 2021).

The scale and detail of information about employees, and often self-employed contractors, that is now available to employers through these technologies is potentially vast. Yet there are few restraints placed on employers that limit data collection, data use (including whether it can be sold on), data access, or the duration of data storage.

There is significant focus on the regulation of, and guidance for, the ethical use of AI, however there is less attention paid to algorithmic management more broadly, and specifically ADM in workplaces. The Better Practice Guide published by the Commonwealth Ombudsman provides a base framework for organisations; however, more support is needed for organisations to be able to assess the appropriateness of ADM-related technologies, identify potential negative outcomes and mitigate associated risks. This requires further investment in well-designed research that iteratively captures the development, implementation and use of ADM in Australian workplaces as technological capability increases.

Recommendation 1:

Invest in studies which can reliably measure over time: (i) the extent of proliferation of ADM; (ii) the people management functions of ADM; and (iii) the consequent impacts of ADM, in different industries and workplaces across the Australian labour market.

Recommendation 2:

Review and continuously update the Commonwealth Ombudsman's Automated Decision-making Better Practice Guide. Support organisations, via tailored, context-sensitive training and tools, to develop the necessary skills to assess the benefits and risks of ADM technologies within their workplace.

Benefits of ADM

TOR (a): Benefits for productivity, skills development, career progression and job creation

Benefits for Organisations

Automated decision making can support the management and monitoring of complex operations, optimising the use of human resources. **Workforce planning** has been a consistent challenge for many Australian organisations, particularly those who offer 24/7 services with complicated staff scheduling and rostering systems. Workforce optimisation software uses algorithmic management and ADM to help organisations manage complex staff schedules, roster employees to improve efficiency, and reduce downtime when a change to a roster or schedule is needed. Automating rosters is particularly beneficial in dynamic situations where disruptions have significant social impact, such as in hospitals or health services, airports, or transport services. Organisations are hence turning to external technology providers for bespoke, programmable, automated solutions that ultimately expand their algorithmic management, AI and machine learning (ML) capability. Without this internal capability,

organisations risk becoming reliant on external software companies, many of which are located overseas, for an essential workforce and service delivery function.

ADM also offers significant benefits for organisations that **manage distributed workforces**. The use of GPS/vehicle tracking, mobile phone monitoring, biometrics and other devices have been adopted to schedule, track and distribute work to workers in transport and logistics, in-home care services and even domestic workers (Aloisi & De Stefano, 2022; Hassel & Özkiziltan, 2023; Prassl, 2018). This can have substantial benefits for organisational productivity and efficiency, reducing drive times and associated costs, monitoring vehicle wear and tear, and optimising delivery/service times. The use of this technology has been most evident in the gig economy, where delivery-driver platforms utilise heuristics data from workers' smartphones (Newlands, 2022) to allocate, remunerate, discipline, or terminate workers, providing substantial benefits for platforms but eroding the conditions experienced by workers (McDonald et al., 2020; Williams et al, 2022)

Since the pandemic, there has been a rise in remote or hybrid workforces. **Remote work**, which demands higher levels of trust as employees are less visible to the manager, has fuelled new methods of monitoring attendance, engagement and productivity. Team collaboration becomes more difficult and the visibility of individual workloads and the fair distribution of tasks can become challenging. ADM technologies provide a solution to these challenges by monitoring time and attendance, tracking keystrokes and tasks, and automatically prompting employees to stay on task or advising supervisors of "unproductive" behaviour. Remote work technologies can also encourage workers to be more active via "nudges", detect stress and prevent malicious behaviour (Bales & Stone, 2020; Patel et al., 2022; Thompson & Molnar, 2023).

Many of the technologies can be adopted in "stealth" mode without the knowledge of employees, and in so doing can identify internal data security breaches, preventing unlawful employee actions or external malicious attacks (Thompson & Molnar 2023; Williams & Khan, 2024). They can also be used punitively against employees. This was illustrated in the case of *Suzie Cheikho v Insurance Australia Group Services Ltd* [2023] FWC 1792, where it was found Ms Cheikho's employer was justified in terminating her employment based on her alleged under-performance as identified through data captured by keystroke tracking. There is little evidence to show that such technologies actually improve the productivity of remote workers, nor how employees respond to the experience of remote monitoring, or the ethical and legal implications of covert monitoring of employees, particularly when in their home.

When organisations engage in large **recruitment** drives, ADM can assist in filtering, screening and shortlisting large volumes of candidate resumes, saving considerable time for both the organisation and applicants. Automated psychometric tests and automated interviews also provide employers with more information on candidates than previously available, without the allocation of significant resources. This may reduce time to hire and provide candidates with faster (automated) responses. Emerging research, however, suggests that candidates may react negatively to excessive automation in the recruitment process. Little is known about the extent to which recruiters can override selection decisions made by automated or AI-enabled technologies, or if potentially suitable candidates have been inadvertently filtered out or discriminated against because of biases in the algorithms (McDonald et al., 2024; Sheard, 2022).

In summary, ADM provides organisations with real-time, continuous data on workers which can be reviewed and reported with high levels of synchronicity (Aloisi & Gramano, 2019). Employers can now efficiently and cost-effectively monitor workers' time use, productivity, locations, typing speeds and internet use, and they can capture and store images, videos and audio material via webcams and other devices (McDonald et al., 2024). However, in Australia, **people analytics** is still an emerging field. Many organisations lack the skills and capability,

particularly in their HR functions, to be able to accurately interpret and use the data now available to them. Universities are only in the early stages of incorporating people analytics into the curriculum of human resource qualifications.

Benefits for Workers

For workforces, ADM can, when used appropriately, support **improvements to workplace health and safety** by monitoring and correcting risky worker behaviour. For example, Uber employs AI-enhanced telematics to monitor driving behaviour, including harsh braking and acceleration (Hayes et al., 2017). As is common in the gig economy, however, the monitoring rarely results in additional training or safety support for workers, but rather leads to disciplinary action and a reduction in work opportunities (Williams et al., 2022).

ADM may also **reduce the need for close human supervision**, providing workers with more autonomy and greater levels of control in their daily work. For example, employee self service functions offered by many ADM technologies provide workers with the ability to view their rosters and update their availability, potentially avoiding difficult managerial conversations. Where ADM distributes tasks and provides instant performance feedback, role ambiguity may be reduced for some employees via greater clarity on the tasks to be completed and the timeframes within which completion is required. For example, in roles such as picking and packing, ADM sets hourly targets to be achieved and prompts employees on their progress. Where remote computer monitoring is used, employees who may not have previously had the option, may now be able to work from home or another location. For example, our recent research in manufacturing uncovered an instance where the digital monitoring of workflow enabled a female supervisor to return to work following maternity leave with remote working options.

While productivity gains that could be achieved through ADM have the potential to enable organisational growth and thereby jobs creation, there is to date no evidence that ADM has led to jobs growth in any industry. There is however some evidence that ADM and workforce optimisation more generally can result in a reduction in staff numbers, fewer shifts/rosters for existing staff, and job losses (Kantrowitz, 2020). This may be desirable in industries that are experiencing labour shortages, but otherwise raises concerns about significant social impacts. For example, the expansion of ADM across human resource management functions may reduce job opportunities in the HR profession, diminishing a function critical to managing the employment relationship and balancing organisational profitability with fairness and equity for employees.

Recommendation 3: Facilitate and fund training for industry to increase capacity in the ethical use of ADM people analytics.

Training could be administered through professional associations such as the Australian Human Resources Institute (AHRI) to grow capability in the HR profession to utilise and interpret data.

Recommendation 4: Support Australian universities to grow organisational capability by developing curriculum in undergraduate and postgraduate courses.

Business/HRM courses should explicitly include AI, machine learning (ML) and analytics (including people analytics), in addition to the regulatory and ethical aspects of ADM. The latter focus should also be included in higher education offerings in mathematics, software engineering and AI/ML related qualifications.

The Risks of ADM

TOR (c): the risks, opportunities, and consequences for the nature of work, including effects on hiring, rostering, work intensity, job design, wage setting, monitoring, surveillance and job quality

TOR (d): the effects of these techniques on the scope of managerial prerogative, labour rights, ability for workers to organise, procedural fairness, equality, discrimination, and dignity at work

TOR (f): the effects on gender equality, job security, small businesses, Closing the Gap and disadvantaged and vulnerable cohorts of workers

The risks and consequences of ADM for the nature of work are outlined below according to the effects on the various work characteristics listed in TOR (c), beginning with monitoring and surveillance. In outlining these risks, we also consider the effects of ADM on managerial prerogative, procedural fairness, equality, discrimination and disadvantaged and vulnerable cohorts of workers, addressing TORs (d) and (f).

Monitoring and surveillance via ADM

The majority of research addressing ADM has focussed on warehousing and logistics, particularly the experience of Amazon workers. In these contexts, evidence suggests that ADM may result in heightened pressures to perform, increased physical exertion, lower job satisfaction and higher levels of stress (Gutelius & Theodore, 2019; Lorson et al., 2023).

Yet ADM is being implemented in many industries where work is less physical in nature. As noted in the benefits section above, for knowledge workers who work on laptops or PCs, technology has replaced managerial oversight of employee activities, hours and output. Our recent research has shown that new workforce optimisation technologies are being used to **surveil workers** at their desks, often without their knowledge (Williams & Khan, 2024). Remote monitoring technology pre-determines what constitutes productive time and automatically prompts or nudges employees to undertake specific tasks using automated “just-in-time” pop-up messages, then measures employees’ activity with real time automated reporting. How often and what employees are working on is recorded using automated time and/or keystroke tracking, and by taking screenshots of an employee’s computer, or video recording them at their desk. When and how these functions occur can be programmed into the technology and be followed by automated responses to so-called “deviant” or “non-compliant” behaviour (Williams & Khan, 2024).

ADM is also being used to **rank employees on leader boards** according to their performance, categorising their time and work activity as productive or unproductive. Productive time, as determined algorithmically, becomes a proxy for performance, with little room for workers to exercise task autonomy or flexibility in their use of time, and no obvious measurement of work quality. Using ADM, non-compliant employees can be automatically locked out of their computers or keyboards, in ways similar to gig workers who are restricted or removed from platforms (McDonald et al., 2021). Unlike self-employed gig workers, however, employees are bound by the terms of their employment contract to respond to ADM by demonstrating the technologically-driven required behaviours.

This is particularly problematic when the technology is used in “stealth” mode. In a review of the functions of six popular monitoring technologies, our research found that all but one offered **covert monitoring** to ensure that employees were “unaware” that they were being monitored. Whilst the aim may be to assist organisations to automate the identification of security breaches and “insider threats”, the lack of transparency has implications for an employee’s right to privacy, and their right to know what actions are being monitored and measured. This is of most concern when employees are working from home and the remote activation of cameras on an employee’s computer may capture personal information on other family members who have not consented to being monitored, including children.

ADM technology can also be a component of employer-required mobile phone apps, where employees can be monitored anywhere, anytime, even when they are not at work. Employees often have less access than employers to the data collected via the apps and may not even be aware that the data was captured by their employer at all. We are currently investigating the extent to which this is occurring, and if or how organisations are retaining, using, and securing data on the private activities and movements of their workers.

Rostering and job design

While there are many benefits (outlined earlier) associated with the use of ADM for rostering staff, there are also unintended consequences, including for job design and work quality. ADM used for rostering and scheduling, and otherwise optimising workforces, risks reducing human employees to resources that can be shuffled and moved throughout the workplace, with little regard for variances in human skill or the quality of their work. ADM is frequently developed by mathematicians and software engineers who have expertise in building algorithmic formulae to determine the optimal use of resources. **Work can become fragmented** as jobs are defined by the average or fastest time to complete discrete tasks, and human workers become the tools used to cost-effectively complete the tasks. While these systems may offer greater efficiency and adaptability than manual or human-led rostering systems, they may also be limited in their capacity to accommodate unexpected events or the unique, one-off needs of the human workers they are designed to optimise.

Early indications from our research suggest that where these systems are used, such as in retail, workers may find it difficult to complete a task in the allotted time if they are consistently or unexpectedly interrupted by customers. This can lead to **reductions in the quality of the work**, and an emphasis on quantity of output rather than quality, which may ultimately reduce workers' sense of accomplishment or pride in their work. Key elements of job design, such as skill variety, task significance and task identity may be negatively affected (Oldham & Hackman, 2010). Workers who may be unable to keep pace with technology for genuine reasons such as health issues, or whose availability is limited by their personal circumstances (such as caring responsibilities), face the risk of disadvantage, even if the quality of their work is optimal.

Furthermore, in ADM the technology acts as an intermediary impacting on the **dialogue and social exchange** between employees and their managers (Cappelli & Rogovsky, 2023; Kellogg et al., 2020). Employees must interact with an automated system rather than a human manager, notify the system of their availability, record their attendance, accept rosters and tasks, and register the completion of tasks. Opportunities to engage in direct dialogue with supervisors are reduced, thereby limiting opportunities to discuss unique personal circumstances, or temporary or unexpected events that impact on the employees' availability. Supervisors too may be impacted, as ADM potentially increases the number of employees they may be required to manage at any given time, simultaneously **limiting supervisory decision-making**, and managerial authority and discretion. Yet there has been little exploration of the impact on supervisors, and relatedly how ADM might reduce the need for supervisory positions and limit opportunities for career progression of entry-level employees.

Human oversight, and the ability for humans to override automated decisions (including rosters), is necessary to address these issues. There is also a need to ensure that benchmarks built into automated scheduling systems are based on a fair assessment of the time taken to complete tasks, rather than on the fastest/optimised completion rates that may inadvertently disadvantage employees who are physically or otherwise unable to work at that pace. Furthermore, employers should be required to assess performance based on a range of indicators of quality as well as quantity, so that achievement of ADM targets do not solely determine an individual/s remuneration, promotion opportunities, or continued employment. The use of ADM to identify under-performance and/or determine continued employment, must not empower organisations to circumvent due process in managing under-performance. The *Fair Work Act 2009* (Cth) itself has no restrictions on the use of ADM to manage and record performance. Given the Fair Work Commission is not bound by rules of evidence under the *Evidence Act 1955* (Cth) when deciding unfair dismissal cases, otherwise unlawful evidence obtained through ADM may still be

admitted in an unfair dismissal case (as highlighted in *Haslam v Fazche Pty Ltd T/A Integrity New Homes* [2013] FWC 5593, *Krav Maga Defence Institute Pty Ltd v Markovitch* [2019] FWCFB 4258 and *Singh v Santosheema Pty Ltd* [2020] FWC 3795). This loophole and lack of regulatory attention within workplace laws requires aggrieved employees to pursue legal redress through more costly, time-consuming avenues.

Work intensity and job quality

Prior research in the gig economy shows how digital platforms have used algorithmic management to automatically assign tasks to workers, track task completion times and worker locations, control the quality of work using customer ratings and reviews, and reward and discipline workers (Baiocco et al., 2022; Huang, 2023; Williams et al., 2021). This research has also shown that rather than enabling worker autonomy, management by algorithm **constrains the flexibility and autonomy of workers**, leading to work intensification and a sense of social isolation (Williams et al., 2022; Wood et al., 2019).

Similar impacts on the job quality and work conditions of employees in “regular organisations” (Baiocco et al., 2022, p.5) subjected to ADM could be expected. Prior research has demonstrated that constant monitoring can result in **work intensification, high levels of stress and poor job quality** (Aloisi & Gramano, 2019; Thompson & HcHugh, 2009). Even as ADM supports autonomous work and may enable some workers to work remotely for the first time, paradoxically it also results in heightened control over worker behaviour (Flyverbom, 2016; Noponen et al., 2023), including risk taking. For example, a study on drivers subjected to ADM showed how time pressures increased risk taking behaviour, including speeding, ignoring road signs, and driving in poor weather conditions, and contributed to long work hours, fewer breaks and driving when fatigued (Christie & Ward 2019). The widely cited case from Amazon also demonstrated how ADM that monitored the pace and productivity of workers, including “idle time” such as toilet breaks, was used to determine the renewal (or not) of employment contracts, and led to work intensification and safety issues in warehouses (Delfanti, 2021; Saner, 2018; Wood, 2021).

Despite evidence from Amazon warehousing employees and gig workers that ADM can lead to risk taking behaviours at work or have unintended consequences, there is limited research that looks at the physical and psychosocial hazards that arise when ADM is applied in different work contexts. However, one study that is currently being conducted by Karolinska Institutet and funded by Forte (2023-2029) with Australian researchers Associate Professor Penny Williams (QUT) and Emeritus Professor Michael Quinlan (UNSW), aims to understand the impact of algorithmic management on the health, safety and wellbeing of workers in non-platform sectors and develop tools and strategies to mitigate the risks. Similar research is required in the Australia context.

Hiring

The risks posed by the use of AI and ADM in recruitment and selection has been more widely studied than other ADM workplace applications. This is because using AI during the hiring process has been shown to improve efficiency, particularly when screening high volumes of candidates (Allal-Chérif et al., 2021; Altemeyer 2019; Vrontis et al., 2022). Examples of the time and cost savings achieved by prominent organisations describe how the “reach”, “speed” and “quality” of selection processes was improved while also ostensibly removing human bias from selection decisions (Altemeyer, 2019; van Esch & Black, 2019, p. 731). Yet in a widely publicised case, Amazon’s use of ADM was found to also contain bias. Male candidates were preferenced over females for technical jobs such as software developer, demonstrating how bias and discrimination can be embedded in ADM hiring systems (Tursunbayeva, et al., 2022). Although algorithms are ostensibly “gender-blind”, **structural gender inequalities** and **under-represented subpopulations** embedded in training data can lead to discrimination and produce gender inequalities in the workplace (Köchling and Wehner, 2020; Tursunbayeva, et al., 2022).

Automated interviewing and “sentiment analysis” are also popular tools used in selection processes. This involves candidates responding to automated interview questions, and having their responses recorded and analysed to

assess fit with the organisation, and scored on language, tone, non-verbal behaviour, speaking patterns and facial expressions (Hmoud & Laszlo, 2019; McColl & Michelotti, 2019). This has obvious implications for job applicants who are, for example, neuro-diverse or have an impairment that affects their speech or non-verbal interactions (Khan et al., 2023). Studies have already demonstrated that a person's race or skin tone influences how facial recognition software interprets expressions (Gupta et al., 2022) and that detecting emotions with high accuracy requires context beyond the face and body and non-verbal behaviour (Suen et al., 2019). The **risk of bias** is increased where an algorithmic system is more complex and lacking in transparency (Charlwood, 2023; Roberts et al., 2019). A carefully designed system with maximum transparency is likely to have more positive outcomes.

As the use of AI and ADM in recruitment and selection continues to grow, so does the risk that employment will become even more difficult to obtain for groups who are under-represented in training data,. Social divisions and employment inequities may be exacerbated. This has flow on effects for organisations, diminishing the benefits afforded from **diversity, equity and inclusion** in the workforce, including enhanced creativity, problem-solving, and innovation, and the ability to cater to diverse customer needs.

Candidates, too, may not always be aware when AI or ADM is being used during the hiring process and are unlikely to be afforded any opportunity to question their inclusion/exclusion from any stage of the selection process. Greater system transparency is required to provide recruiters with visibility of exclusionary decisions and ensure candidates can participate in various stages of the recruitment process in a way that promotes fairness and integrity.

Recommendation 5: Address health and safety risks associated with ADM:

- a. Invest in research on the health, safety and wellbeing implications of ADM.
- b. Task Safe Work Australia with the development of a Code of Practice which identifies and addresses the specific safety risks associated with ADM.

Recommendation 6: Require employers to retain human oversight of performance assessments and related decisions, including dismissal of workers.

Formulate and disseminate guidelines for employers on the use of ADM to assess worker performance, including how to establish fair and equitable time/completion benchmarks in ADM scheduling systems, alongside requirements for quality indicators, ensuring there are mechanisms for overriding automated decisions, especially where equity concerns are relevant.

Recommendation 7: Require higher levels of transparency in automated recruitment systems:

- a. Establish a requirement that employers must advise all candidates when they are participating in an automated hiring process and provide candidates with an avenue to seek feedback on their application.
- b. Require all ADM systems used in recruitment and selection to identify and mitigate inbuilt biases by including an audit or reporting process whereby employers can review both selection and rejection/screen out decisions by key diversity characteristics.

Responsible ADM

TOR (e): appropriate safeguards or regulatory interventions to guide responsible implementation in the workplace, including the digital skills and resources necessary for employers to appropriately utilise these technologies;

Future-Proofing Regulatory Interventions

Fully automated decision making, which requires artificial intelligence (AI) to make decisions without human input, is still an abstract concept. Krasodomski et al. (2024) highlight that “amid wild predictions about what an AI-dominated future might look like, there have also been serious efforts to write new laws on AI”, but efforts remain disjointed and fragmented. Despite this, international safeguards are in place to prevent decisions without meaningful human input. An example is article 22 of the EU General Data Protection Regulation (GDPR) which prevents individuals from being “subject to a decision based solely on automated processing, including profiling, which produces legal effects concerning him or her or similarly significantly affects him or her.” In a New York City Local Law, where the use of algorithmic management in workplaces has been regulated, the term “automated decision tools” has been codified and defined as “any computational process, derived from machine learning, statistical modelling, data analytics, or artificial intelligence, that issues simplified output, including a score, classification, or recommendation, that is used to substantially assist or replace discretionary decision-making for making employment decisions that impact natural persons” (New York City Local Law 144-21). More recently, the EU Platform Work Directive is the first regulatory tool globally that prevents ADM from terminating a worker without human oversight. In Australia, similar safeguards do not exist.

Governments often come to the table on the fringes of technology too late, or too poorly resourced to be more than a handbrake on the profits or progress of global technology firms (Krasodomski 2024). Australia lacks any specific legal frameworks to deal with algorithms or AI in either a workplace or broader environment. Further, existing laws fail to serve the needs of current and future technological developments and have not kept pace with how ADM manifests in organisations, nor the kinds of data now being routinely collected by organisations. Existing laws in Australia lack cohesion, resulting in a patchwork of regulation across various legal domains and governmental departments that lack uniformity. The area is regulated by a wide array of state and federal regulatory bodies including police or crime commissioners, state-based safety bodies, state ombudsmen and privacy commissioners, spanning diverse departmental areas of government.

Human decision-making remains a crucial focus of **anti-discrimination laws** in Australia, yet the use of AI in recruitment and assessments of promotion has been shown to be subject to bias and potential discrimination (Gupta et al. 2022). Hence, culpability for discriminatory decisions made by an automated decision system is currently limited (Sheard, 2022).

The process of collecting ADM data usually occurs through devices that may fall within the scope of **surveillance laws**. These laws may cover, depending on the specific legislation, optical devices (such as webcams), listening devices (such as audio recording devices), tracking devices (such as GPS-enabled watches) or data surveillance devices (such as keystroke tracking). However, preliminary research indicates they are unlikely to cover all forms of ADM or future technological advances. Current surveillance laws in Australia provide a complex system with little uniformity across states, varying levels of application to the workplace, and the potential for error in interpretation. This is despite recommendations spanning ten years to replace existing state surveillance laws with a Commonwealth act that is technology-neutral (Australian Law Reform Commission, 2014). It is imperative to address this disparity given the rapid rise in monitoring and surveillance of workers as an integral feature of ADM, and the various technological means through which surveillance of workers now occurs.

Similarly, **privacy legislation** needs to take into account the wide array of ADM tools that are now being used to collect employee information. The rise in remote working, coupled with the daily use of a combination of employer-provided and personally owned devices by employees, blurs the distinction between work and non-work activities and space. This complicates public/private distinctions between work and non-work time, and data that is required to legitimately manage the employment relationship and the excessive collection of personal data from employees. At present, employees are bound by employment contracts to engage with ADM and provide their data, with few, if any, avenues to opt out from consenting to share their data and information. Currently, privacy law application is limited within the workplace, meaning many employers are not obliged to be transparent about the data they collect, who can access that information or provide details on how employee data is stored, used or disposed of.

Necessity of a Uniform Approach Specific to Workplaces

Automated decision making, AI and algorithms present a significant **public interest** and identified area of potential risk, and as such have received considerable attention by several different state and government agencies. The Department of Industry, Science and Resources' (2023) interim findings on supporting responsible AI highlight a need for regulatory action, establishment of risk categories, and updating existing laws to mitigate the risks associated with AI. Similar issues present with algorithmic management, and as such the Department's findings are pertinent to ensure the responsible application of ADM within the workplace. However, the workplace has additional relevant safeguards that need to be considered. Responsible governance of AI "may also mean protecting the principles of open-source development, as well as inclusivity, fairness and equality" (Krasodonski et al., 2024). Big tech companies have increasingly shifted to closed approaches under the guise of security and protection of privacy, although critics have argued "this is more about protecting market share and reducing competition than about improving safety" (Krasodonski et al., 2024, p.5).

There is an imbalance in power and control between employers and employees in a workplace, and the use of ADM can have far greater consequences for employees, leading, in the extreme, to dismissal and loss of employment. As such, greater protections need to be fostered for the effective regulation of ADM in workplaces. Regulation that protects the rights of employees and restricts the capacity of employers to use ADM to increase productivity and competitiveness is urgently needed. This requires a review of existing workplace laws to ensure they adequately reflect contemporary, automated approaches to managing workers. The fragmented approach to regulating ADM, coupled with the opacity of AI and algorithmic management technologies, makes it difficult for organisations to determine if and when ADM may contravene existing legal frameworks. Employees too are left with little recourse when they believe that ADM has unfairly impinged upon their rights.

Education for Responsible Utilisation

A multi-level regulatory approach which incorporates self-regulation and education would serve the needs of the significant variance in risk level and application of ADM, both currently and in the future.

For employees, improved education could assist in understanding the role of consent in ADM, and what legal protections may exist. Employee voice, which is currently constrained by the lack of transparency associated with ADM, could be strengthened through formalising consultation processes around the use and functions of AI-enabled software (Collins and Atkinson, 2023), and through collective bargaining which specifically targets the use and outcomes of ADM and the management of the associated employee data (Krzywdzinski et al., 2023; De Stefano, 2020).

Improved employer education would enhance understanding of the risks and opportunities associated with ADM. Employers will be more capable of making informed decisions and achieving best practice.

Recommendation 8: Improve the legal framework associated with ADM.

Several approaches are available to protect workers and establish the legal obligations of employers relating to the collection, use and storage of data. These include harmonising and modernising surveillance laws, enhancing employee protections under the *Privacy Act 1988* (Cth), amending the *Fair Work Act 2009* (Cth), or creating a new, fit-for-purpose statute to address legislative gaps.

Recommendation 9: Adopt regulatory intervention that takes a risk-based approach.

The level of automation, invasiveness and outcomes of the ADM should be core features that govern compliance expectations. Transparency, consent and consultation should be amongst the regulatory outcomes.

Recommendation 10: Provide improved education opportunities for relevant actors in the employment relationship around the risks and opportunities of ADM to support self-regulation, best practice and capitalise upon the benefits associated with the use of ADM.

Education that encourages the responsible use of ADM would complement recommended regulatory changes.

Conclusion

This submission draws on current and emerging research to outline the risks and benefits of automated decision-making in workplaces. We draw attention to the significant risks posed to the erosion of work conditions and fair access to employment opportunities, particularly for individuals and groups under-represented in the labour force. The recommendations directly address these risks and contribute to the ethical and responsible digital transformation of workplaces in Australia.

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