Inquiry into the Digital Transformation of Workplaces

Submission from The House Standing Committee on Employment, Education and Training from Australian Manufacturing Workers' Union.

Summary

The Australian Manufacturing Workers' Union (AMWU) welcomes the opportunity to submit to The House Standing Committee on Employment, Education and Training's inquiry into the Digital Transformation of Workplaces. The AMWU represents around 55,000 members in every region and city in Australia. Our members manufacture, repair and maintain aircraft, defence infrastructure, mining equipment, trams, trains, and buses. We process the fruit and vegetables Australia's farmers grow, we work in construction, and we maintain equipment and machinery in hospitals, buildings, factories and mines around the country.

The AMWU as long maintained that a lack of private investment in new technologies is holding back Australian industry. As will be outlined in the following section, Australian private investment in research and development has declined significantly over the last decade, while private investment in machinery and equipment has stagnated in real terms and declined significantly as a percentage of gross domestic product (GDP). An exception to this trend is business investment in software, which has accelerated here significantly in recent years.[1]

Unfortunately, this shift in investment has not translated into productivity growth. As will be argued at length below, the AMWU believes that this is because much of the investment in digital technologies has been geared toward managerial control applications such as surveillance of workers, rather than productive applications, such as predictive maintenance and inventory management.

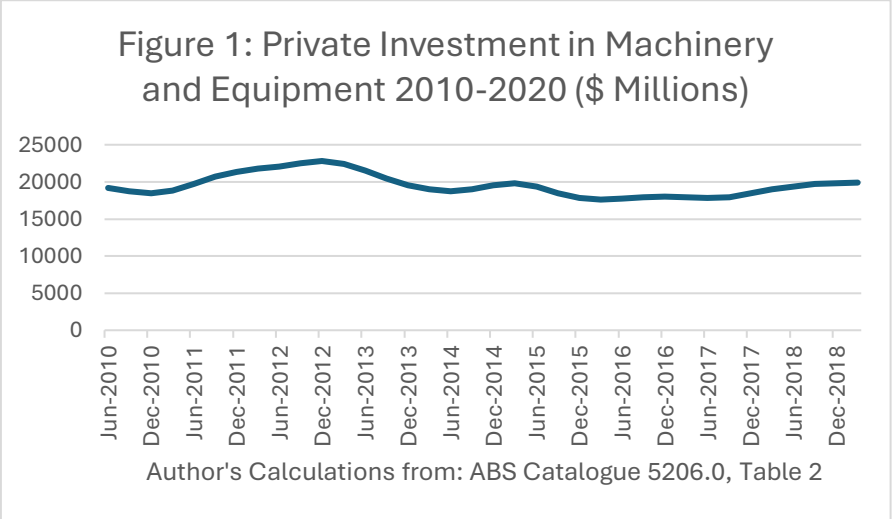
Many of the sectors where our members work are experiencing, or are projected to undergo, significant work reorganisation with the introduction of new digital technologies, automated decision making and machine learning. However, how these changes manifest in actual workplaces will depend on the how workers are consulted, trained and empowered during the processes of technological change. Unfortunately, to now, workers have not been appropriately involved, but it is not too late to change course. Doing so will require deep consultation with workers and their unions, more investment in complimentary hardware, and extensive worker training, but represents a major opportunity to empower workers in Australia for the jobs of the future and kickstart Australian productivity growth.

The Federal Government can lead in this space by exploring options for greater worker voice in the reorganisation of their workplaces and should consider establishing avenues for institutionalised worker participation in these areas.

[1] Author's Calculations from: ABS Catalogue 5206.0, Table 2

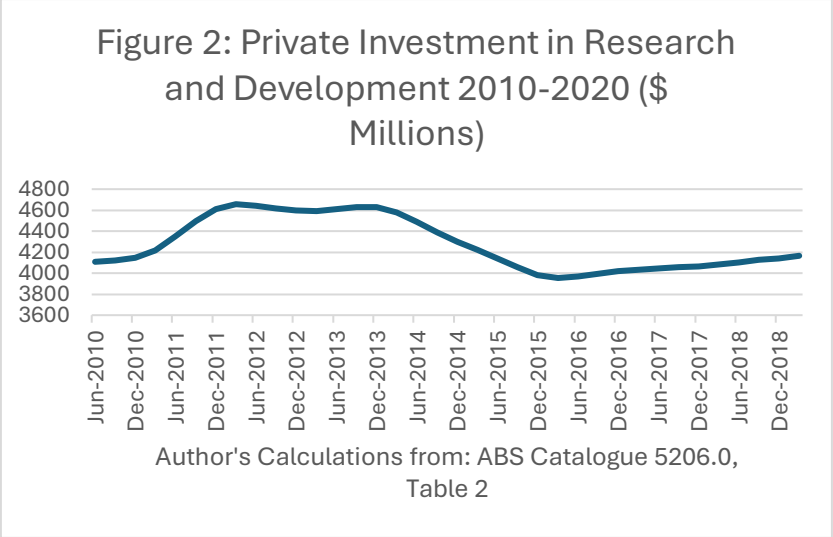
A) The benefits for productivity, skills development, career progression and job creation in Australia.

The AMWU has previously expressed concerns about the stagnating or declining (depending on measurements used) private sector investment in new technologies. Alongside others,[2] we have drawn attention to the fact that low levels of business investment in machinery and equipment, as well as research and development was harming Australian productivity and international competitiveness. This issue has become increasingly alarming: private sector investment in new machinery is weaker now than at any point in Australia's postwar history.[3] Figure 1 shows stagnating investment in machinery and equipment over the decade from 2010-2020, which represents a real decline relative to GDP.

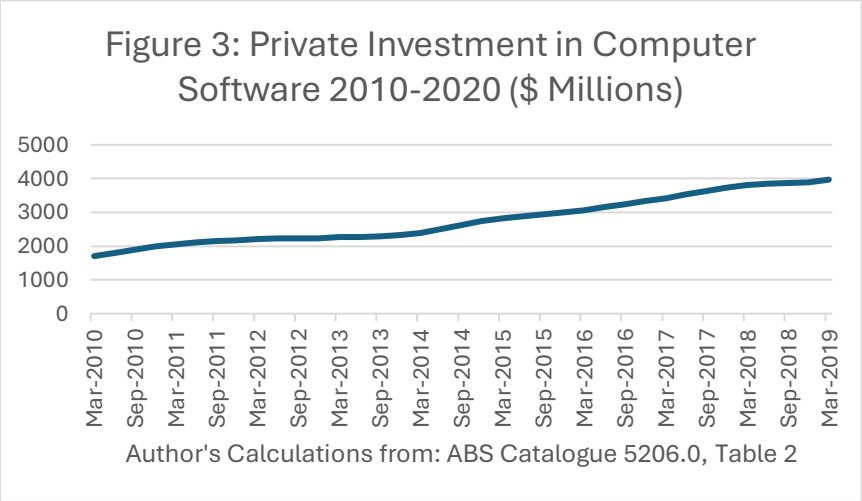


Business spending on new research and technology has also been falling in Australia, and now ranks well behind the average of other industrial countries (and even some emerging economies, like China). Figure 2 shows the significant decline in investment in these areas in the decade between 2010 and 2020. Because of less automation and innovation, average productivity in Australia's economy has also been declining for several years – a historic poor performance by post war Australian standards.

[2] Stanford, J. 2020. The Robots are NOT coming. *The Australia Institute:* https://futurework.org.au/report/the-robots-are-not-coming/
[3] Ibid.



An exception to these trends is the dramatic increase in private sector in software systems depicted in Figure 3. Business investment in computer software more than doubled over the period of 2010-2020 in which other business investment in technology stagnated or wentbackwards. This qualitative shift in private sector investment has serious implications for Australian workers and the Australian economy.



For example, this dramatic surge in software investment has not helped drive any significant uptick in productivity in the Australian economy. This constitutes what has been dubbed the 'Modern Productivity Paradox'. Systems using artificial intelligence and other digital software can match or surpass human level performance in more and more domains, leveraging rapid advances in other technologies and driving soaring stock prices, yet these investments fail to drive productivity growth.[4] Several explanations have been posited for why the digital revolution

[4] Erik Brynjolfsson, Daniel Rock, and Chad Syverson. Artificial Intelligence and the Modern Productivity Paradox: A Clash of Expectations and Statistics. NBER Working Paper No. 24001 November 2017 JEL No. D2,O3,O4

is failing to drive productivity growth including failures in implementation and simple false hopes surrounding these technologies.[5] The AMWU believes a lack of investment in complimentary hardware and a lack of worker upskilling (a central aspect of successful implementation) means that these technologies are being deployed for the purposes of controlling workers rather than more productive applications.

This distinction is elaborated below:

(1) Productive applications. Machine learning and other digitised processes can be implemented in a way that augments labour productivity in Australian manufacturing workplaces. These applications include examples such as inventory management and predictive maintenance in manufacturing equipment. When combined with the necessary worker training, and investment in other plant and equipment, these applications can improve efficiency, making Australian businesses more competitive in a global market, and providing workers with more interesting, high value adding work opportunities.

(2) Control applications. Relatively less attention has been given to the rapid development of machine learning and digital work technologies to carrying out managerial control functions, or 'algorithmic management'.[6] Aspects of the employment relationship (for example, decisions on recruitment, line management, task allocation, performance management, monitoring and surveillance) are increasingly being managed by algorithm, instead of by a person. The use of digitisation in this way has significant implications for workers in terms of their employment rights, such as their rights to equality, privacy, and data protection, their physical and mental wellbeing, and wider issues such as the balance of power between employers and the workforce, and democracy at work. A lack of consultation and transparency regarding the use of AI at work brings with it significant risk for workers in Australia.

The AMWU believes that too much emphasis is being placed on the development and implementation of the control aspects of digital technologies in Australian workplaces. These investments are failing to deliver the promised productivity gains because of a lack of

[5] Ibid.
[6]Sara Baiocco, Enrique Fernandez-Macías, Uma Rani, Annarosa Pesole. 2022. The Algorithmic Management of work and its implications in different contexts. ILO Background Paper 9.

investment in complimentary hardware, and because workers are not being consulted in their application or adequately trained to use new technologies in value-adding ways.

B) the role of business software and regulatory technology ('Reg Tech') in improving regulatory compliance in the workplace relations system, including their use by regulators, and accountability for errors resulting in non-compliance;

Regulatory technology, or 'Reg Tech', represents a significant opportunity to clampdown on wage theft in Australia, as well as other forms of employer non-compliance with the Fair Work Act and other legislation. Despite recent laws criminalising wage theft in multiple jurisdictions, the underpayment of workers—ranging from minor errors through to systematic theft in the millions of dollars[7]—the underpayment of workers remains rife in Australia. Data released earlier this year showed that Australian workers lost nearly $850 million a year due to wage theft in 2023.[8] A recent report found that a staggering 59 per cent of Australian businesses conceded to making payroll errors in the previous 24 months.[9] Young workers are disproportionately impacted by this issue: the Young Workers' Centre has found that one in five young workers are paid below the legal minimum base-rate, while half are not paid appropriate penalty rates.[10]

While unions and investigative reporters have uncovered countless cases of deliberate and systematic wage theft,[11] employer organisations frequently cite 'over complicated' industrial relations regulations for these underpayments. Reg Tech—as part of a more robust anti-wage theft policy suit—represents an opportunity to make wage theft less common. In 2020, the Australian Small Business and Family Enterprise Ombudsman suggested that a Reg Tech payroll software with correct wage rates and penalties programmed into it should be made available to small and medium enterprises. Under the proposal, the Fair Work Ombudsman (FWO) would endorse regulatory technology solutions – payroll software incorporating awards that determine workers' pay rates—and these would be made available to SMEs throughout the country.[12]

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[7] Ben Schneiders. 2022. Hard Labour: Wage theft in the age of inequality.
[8] The Age. 2024. Staggering number of Aussie workers victim to wage theft. The Age: https://www.smh.com.au/national/staggering-number-of-aussie-workers-victim-to-wage-theft-20240322-p5fem2.html
[9] Loop, M. 2024. Accidental wage theft can be costly. Here's how to eliminate it. https://www.rippling.com/en-AU/blog/modernise-your-payroll-system
[10] Young Workers Centre. 2020. Improving Protections of Employees' Wages and Entitlements: Strengthening Penalties for Non-Compliance. https://www.youngworkers.org.au/research
[11] Ben Schneiders. 2022. Hard Labour: Wage theft in the age of inequality.
[12] Australian Payroll Association. 2020. Payroll software could protect employers who commit accidental wage theft, ombudsman says. https://www.austpayroll.com.au/payroll-software-could-protect-employers-who-commit-accidental-wage-theft-ombudsman-says/

While the AMWU supports this approach, we believe that the payroll software should be made mandatory for businesses who have a track record of underpaying workers—accidentally or otherwise. The payroll software should be developed centrally and made available to SMEs who wish to use it. However, firms who are found to underpay workers should be compelled to implement the software with Awards and other basic conditions embedded in it. For repeat offenders, regulators and unions should be granted real time access to their backend data so that compliance can be monitored and enforced.

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;

Workplace technological change is often discussed by employers and tech developers as if it is immediate and inevitable. This framing suggests to workers and policy makers that industry will be reorganised in ways that they have little capacity to shape. However, most of the assertions made along these lines are highly speculative, lacking empirical evidence, instead rely on deterministic narratives around the trajectory of change. In fact, the available empirical evidence shows that the digital transformation of workplaces is highly uneven and contested.[13] Far from being predetermined, digital technologies are subject to significant reconstitution in their application, meaning they can be used in various ways with vastly different outcomes for productivity and workers' experiences.

Thus far, however, the experience of AMWU members has been the use of advanced digital technologies to tighten managerial control and intensify work. This is occurring in several ways:

- Rostering: the AMWU represent highly skilled maintenance workers such as fitters and machinists who often maintain and repair machinery at multiple factories and workplaces. Our union is concerned about the growing 'gigification' of this work in some areas. Gigification of work refers to the process whereby normally full time, secure jobs are turned into insecure, on-demand jobs where workers are asked to work at short notice and are denied the employment benefits of permanent work.[14] Will this trend is in

[13] Lévesque, C. et al. 2021. *Industry 4.0, the Future of Work, and Skills Building Collective Resources for the Canadian Aerospace Industry*. Government of Canada's Future Skills Program: Ottawa. Volume I. London: CSE Books.

[14] The 'Gigification' of Work in the 21st Century; Alex Veen, Sarah Kaine, Caleb Goods, Tom Barratt. Contemporary Work and the Future of Employment in Developed Countries

its early stages, regulators should be aware of these trends and work to arrest their potential deleterious impact on workers' pay and conditions.

- Job design: work organisation in manufacturing and maintenance jobs can be transformed in different ways by the digitisation of work in Australia. If workers are given the necessary opportunities for training, and technological change is implemented transparently and with appropriate consultation, workers can gain new skills, greater autonomy and perform increasingly high value adding work. Conversely, if new technologies are implemented unilaterally by employers looking to increase their control of the workforce, fewer productivity gains will be realised, and workers will experience a degradation of their work.
- Monitoring and surveillance: a recent report found "sweeping amounts of worker data today is tracked across myriad industries, collecting information about almost every aspect of their jobs and sometimes their personal lives, and often without employees' full informed or free consent."[15] AMWU members have reported that internet enabled machinery has been used to gather information about their work patterns and micro manage their work processes, with limited scope for worker intervention or contestation. Other members have reported their computers have had key stroke and other monitoring software installed without being consulted. Regulation is required to limit the scope of managerial surveillance of their workers.

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; and

As outlined in the introduction to this submission, we are increasingly concerned by 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. Automated decision making and machine learning technologies in the workplace present profound implications for managerial practices and employment relations dynamics. These technologies, while promising enhanced efficiency and objectivity, also pose significant challenges to the traditional balance of power between management and workers, particularly in some of the sectors represented by the AMWU.

Impact on Managerial Prerogative

[15] Wilneida Negrón & Aiha Nguyen. 2023. The Long Shadow of Workplace Surveillance. Stanford Social Innovation Review.
https://ssir.org/articles/entry/the_long_shadow_of_workplace_surveillance

The adoption of automated decision-making and machine learning in managerial practices is reshaping the traditional roles and responsibilities of managers within the sectors represented by the AMWU and beyond. While these technologies offer potential efficiencies, they also pose substantial risks to the established dynamics between management and workforce, especially in industries where the AMWU has a significant presence.

1. Decision-Making Automation

In the manufacturing sector, automated systems are increasingly deployed to manage complex production schedules, quality control, and maintenance tasks. These systems make critical decisions that were traditionally the domain of experienced human managers. For example, predictive maintenance algorithms can determine when a piece of equipment should be serviced or retooled, bypassing the nuanced judgments of seasoned maintenance staff. Like many issues in this area, this shift can reduce the direct involvement of operational decisions if workers are upskilled to understand and program new systems, or potentially undermine their understanding of on-ground realities and allow managers to control production processes from a distance without engaging with shopfloor realities.[16]

2. Erosion of Human Judgment

The reliance on algorithms can erode the capacity for empathetic and context-aware decision-making. Managerial decisions in industries such as aircraft manufacturing and public transport maintenance not only require a deep understanding of technical requirements but also an appreciation of human factors such as worker fatigue, safety, and morale. Algorithms, while efficient, lack the ability to make nuanced decisions that consider these human aspects, which are crucial for maintaining a safe and productive workplace.

3. Impact on Manager-Worker Relationships

The introduction of algorithmic management tools often leads to a more transactional relationship between managers and workers. Managers who rely heavily on automated systems for scheduling, task allocation, and performance monitoring may become more detached from their teams, leading to a decline in mutual trust and respect. This detachment can exacerbate workplace tensions, particularly in scenarios where workers feel they are being unfairly assessed or monitored by impersonal systems.

4. Autonomy and Skill Utilization

[16] Ajunwa, Crawford and Schultz, 2017; Moore, P., Upchurch, Whittaker (eds.), 2018

Automated decision-making can also impact the autonomy of skilled workers, such as machinists and fitters, by standardizing many aspects of their work that were previously subject to personal discretion and expert judgment. This can lead to a devaluation of skilled labour and a reduction in job satisfaction, as workers find their roles becoming more rigid and less reliant on their unique skills and experiences.

Labour Rights and Organisational Impact

The opacity of algorithmic decision-making processes can obscure the rationale behind significant decisions affecting workers, such as layoffs, promotions, and daily task assignments. This lack of transparency undermines procedural fairness and makes it difficult for workers to challenge potentially unjust decisions.[17]

Enhanced surveillance capabilities provided by digital technologies can be misused to monitor union organising activities and communications covertly. Such practices can chill the organising efforts and infringe on the labour rights of workers, undermining the foundational principles of democratic engagement within the workplace (*Algorithmic management*).

Procedural Fairness and Equality

The rapid integration of automated decision-making and machine learning within industrial settings represented by the AMWU has significant implications for procedural fairness and equality. These technologies, if not carefully managed and regulated, risk perpetuating existing biases and introducing new forms of workplace inequality.

Algorithms used in hiring, promotions, performance evaluations, and layoffs may replicate or even exacerbate existing biases if they are trained on historical data that includes discriminatory practices. For example, if past hiring data reflects a gender imbalance in the manufacturing sector, machine learning models might inadvertently learn to de-prioritize female candidates, thus perpetuating gender inequality.

There is a risk that automated systems could enforce and normalize workplace discrimination through flawed data or biased algorithmic frameworks. This is particularly critical in sectors like

[17] The 'Gigification' of Work in the 21st Century; Alex Veen, Sarah Kaine, Caleb Goods, Tom Barratt. Contemporary Work and the Future of Employment in Developed Countries

manufacturing, where the diversity of the workforce can be limited, and historical data might not accurately represent the current equity goals.[18]

Dignity at Work

The increase in workplace surveillance technologies, often justified on the grounds of productivity and security, can significantly impinge on the personal space and dignity of employees. Constant monitoring can create an environment of mistrust that diminishes workplace morale and negatively impacts mental health. Workers have expressed feelings of being treated more like digits in a system rather than valued members of the organization, which can lead to reduced job satisfaction and increased worker turnover.

Proposed Recommendations

- **Regulatory Frameworks**: We advocate for the development of robust regulatory frameworks that govern the deployment of automated decision-making technologies. These frameworks should ensure transparency, accountability, and fairness in how these technologies are used in the workplace.
- **Worker Involvement**: It is crucial that workers are involved in the decision-making processes regarding the use of automated technologies. This involvement can take the form of consultation processes or through formal mechanisms like collective bargaining agreements, ensuring that the worker's voice is adequately represented.
- **Technology Audits**: Regular audits should be mandated to assess the impact of technology on workplace practices. These audits should be conducted by independent bodies that include union representation to ensure that the technologies used do not infringe on workers' rights or lead to unintended negative outcomes.
- **Human Oversight:** The AMWU urges policymakers to mandate the inclusion of human oversight in critical decision-making processes where automated systems are employed. This approach, known as "human-in-the-loop," ensures that the valuable insights, experience, and empathetic judgment of human managers complement the efficiencies offered by technology. Human oversight, and in particular workers oversight, is essential to account for the nuanced aspects of workplace management, particularly in sectors involving high-risk operations and skilled labour. This integration will help preserve the quality of decision-making, especially in scenarios that involve

[18] UNSW Law Journal Volume 43(3) REVITALISING PUBLIC LAW IN A TECHNOLOGICAL ERA: RIGHTS, TRANSPARENCY AND ADMINISTRATIVE JUSTICE YEE-FUI NG, MARIA O'SULLIVAN, MOIRA PATERSON AND NORMANN WITZLEB

worker safety and operational integrity. The fact that decisions were taken following machine-based processes should never be a sufficient reason to exclude personal liability; humans should always remain accountable for any decision directly affecting workers. [19]

- **Right to Appeal**: Implement a statutory right for workers to appeal decisions made by automated systems, ensuring that there is a human review process that considers the context and nuances that algorithms might miss.
- **Regular Updating of Training Data**: Require that all machine learning models used in employment contexts be regularly updated with new data that reflects the current values and diversity goals of the organization and society.

A) 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.

There are several steps that government, employers and unions can take to ensure that Australia realises the productive promises of workplace digitalisation, and mitigate the potential

- Ensuring the right to consultation: the AMWU believes that employers are not engaging in appropriate consultation processes around the implementation of advanced digital technologies in the workplace. In a survey of AMWU members, while around 15 per cent of respondents said that AI was being used in their workplace, no respondents had been consulted on the implementation of the technology. To ensure that technological change ensures
- The right to bargain technology: as identified in a major report by Professor Jim Stanford and Kathy Bennett, the only best way to ensure equitable outcomes in the implementation of new technologies in the workplace is to ensure that workers have the right to bargaining collectively over technological change in the workplace. [20]
- Upskilling and training: nationally recognised training packages are must be developed for digital skills required for different occupations and work roles. Here, it is important that regulators do not attempt to reinvent the wheel

[19] EMPLOYMENT Working Paper No. 246 Employment Policy Department 2018 EMPLOYMENT Employment and Labour Market Policies Branch Valerio De Stefano "Negotiating the algorithm": Automation, artificial intelligence and labour protection

[20] Jim Stanford and Kathy Bennett. 2021. Bargaining Technology. Centre for Future Work: https://centreforfuturework.ca/2021/06/15/bargaining-tech/

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

The AMWU recognises that the digital transformation of workplaces brings both opportunities and challenges for gender equality, job security, small businesses, Closing the Gap initiatives, and for disadvantaged and vulnerable cohorts of workers. It is crucial that these aspects are given due considerations to ensure that the benefits of technological advancement are equitably distributed and that potential negative impacts are mitigated.

Gender Equality

On one hand, automated decision-making and machine learning can help mitigate biases in hiring, promotions and wage setting by basing decisions on objective data. However, if these technologies are not properly designed and implemented, they can perpetuate, and increase, existing biases and inequalities. For instance, algorithm trained on historical data may continue to reflect and reinforce past discriminatory practices. It is essential that gender-sensitive data is incorporated into the development of these technologies and that continuous monitoring and auditing are conducted to ensure fairness and equality. [21]

For AMWU coverage workers, gender equality is particularly crucial in traditionally male-dominated industries such as manufacturing and maintenance. The AMWU has observed that women in these fields often face barriers to equal opportunities, including bias in recruitment, unequal pay and limited career progression opportunities. [22]

- Policies guiding the implementation of digital technologies should be developed with the active participation of Unions and workers. The AMWU advocates for a collaborative approach where workers' voices are prioritised in decision-making processes.

Job Security

The rise of automation and machine learning poses significant risks to job security, particularly for workers in roles that are susceptible to automation. This could lead to job displacement and increased precarity for many workers, particularly those in routine or low-skilled jobs. However, there is also potential for job creation in new and emerging fields related to digital technologies.

[21] World Economic Forum. 2021. Global Gender Gap Report 2021. https://www.weforum.org/publications/global-gender-gap-report-2021/in-full/gggr2-gender-gaps-in-jobs-of-tomorrow/
[22] AMWU. 2024. Women in Manufacturing. https://www.amwu.org.au/women_in_manufacturing

- In the AMWU view, to mitigate those risks, it is crucial to invest in retraining and upskilling programs that enable workers to transition into new roles and sectors. Additionally, there should be policies in place to ensure that the benefits of increased productivity from automation are shared with workers through fair wages and job security. [23]
- The AMWU advocates for comprehensive retraining and upskilling programs tailored to the needs of workers in industries affected by automation. These programs should be developed in collaboration with Unions, employers and government agencies (such as Jobs and Skills Australia) to ensure they meet industry standards and workers need. The focus should be on providing workers with the skills needed to transition to new roles within their current industry or move into emerging fields.
- For workers who cannot be redeployed within their current industry, the AMWU advocates for strong support systems, including financial assistance, career counselling and job placement services. Additionally, support should include transition to retirement programs for older workers who may prefer to retire rather than retrain. These measures would help displaced workers to find new employment opportunities and mitigate the negative impacts of job displacement.

Small Businesses

Small businesses may face challenges in keeping pace with rapid technological advancements due to limited resources and expertise.

- The AMWU supports the implementation of Reg Tech payroll software endorsed by the FWO. As previously stated, this software should be made mandatory for businesses with a history of underpaying workers.

Closing the Gap and Disadvantaged and Vulnerable Cohorts of Workers

Disadvantaged and vulnerable workers, including those with disabilities, older workers, Indigenous Australians workers and workers from culturally and linguistically diverse background may face additional barriers in adapting to technological changes.

- It is crucial to implement inclusive policies and practices that ensure these workers are not left behind. This includes providing accessible training and support programs that, to be effective, must be developed and delivered in collaboration with the workers itself,

[23] World Economic Forum. 2020. The Future Jobs Report: 2020. https://www3.weforum.org/docs/WEF_Future_of_Jobs_2020.pdf

employers, unions and, in the case of Indigenous Australians, with indigenous organizations and leaders.