Australian Government

Workplace Gender Equality Agency

The future of work and gender

Insight paper

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Summary

The 'future of work' has captured public imagination in recent years as business leaders, policymakers, media pundits and academics debate whether and how work as we know it will continue.[1] This insights paper addresses the future of work debate, considers its shortcomings and reframes the discussion in gendered terms.

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1 In the first half of 2019 alone, international organsiations such as the Organisation for the Economic Cooperation and Development (OECD) and the International Labour Organisation (ILO) and multinational businesses such as McKinsey and Deloitte, among others, published detailed reports on the topic.

What is the 'future of work'?

To date, discussion about the future of work has centred largely on the automation of jobs, and more often than not, men's jobs. Driverless cars, robot surgeons and self-service transactions represent just a few examples of how artificial intelligence (AI), – informed by big data and machine learning – information and communication technologies (ICTs) and robotics are 'disrupting' work. While technological change has always shaped work, the new frontier of innovation is said to be faster and more expansive than in the past, fueling collective anxiety about the potential impact on employment (Autor, 2015). Internationally, both workers and employers express fears about robots and computers taking over human jobs (Centre for the New Economy and Society, 2018; Wike and Stokes, 2018). Some experts agree that they should be concerned. One highly cited US study suggests that 47% of occupations are at risk of automation (Frey and Osborne, 2013). Other studies highlight that while automation is unlikely to erase whole occupational classifications, it will most certainly reconfigure work within occupations. They predict that most jobs will experience partial automation, while only 5-15% of occupations are expected to fully succumb to automated processes (Autor, Levy and Murnane, 2003; Arntz, Gregory and Zierahn, 2016; Nedelkoska and Quintini, 2018).

Gaps in the current conversation

While the future of work needs considered attention, public discourse on this topic has, to date, fallen short due to three limitations. First, a myopic focus on the quantity of future jobs distracts from important conversations about the quality and inclusivity of current and emerging jobs (Howcroft, Dundon and Inversi, 2019; OECD, 2019; Wood et al., 2019). New forms of employment such as 'platform' or 'gig' work, for example, exist largely outside of traditional regulatory frameworks that have historically supported workers' rights. In this context, the expansion of insecure and exploitative work is identified in the research a very real risk (Kalleberg, Reskin and Hudson, 2000; Berg, 2016; Spencer, 2018). Marginalised workers also face exceptional vulnerabilities if biases that permeate existing recruitment processes (i.e., Pager, 2007) become embedded in the algorithms used to hire, promote and regulate future workers (Stone et al., 2015; Dastin, 2018). An especially insidious by-product of the job quantity framing is that risk of unemployment may deter workers from resisting poor working conditions (Taylor, 2018).

The current discourse is also constrained by the false assumption that technology inevitably shapes all aspects of social life—an assumption social scientists refer to as 'technological determinism' (Zuboff, 1988; Wajcman, 2009). Just because a technological development can transform employment does not mean that it will. Innovation and automation require human and capital investments, and technological advances coincide and interact with other social and environmental factors. Trends such as the globalisation and financialisation of markets, increased global migration, population ageing and widespread climate change intersect with technological advances to influence job transformations. Indeed, market pressures have already driven many employers toward cost-cutting labour strategies, resulting in the casualisation of jobs in non-standard and contingent work agreements (Kalleberg, 2011). How new technology is (or will be) integrated into the world of work depends on the human decisions made by business leaders, policymakers and others within the context of these surrounding factors (OECD, 2019).

Third and most pertinent to this review, the dominant future of work discourse assumes a homogenous workforce uniformly impacted by the unfolding transformations (see AWWF, 2017; Ticona, Mateescu and Rosenblat 2018; Hegewisch, Childres and Hartmann, 2019; Hunt and Samman, 2019; McKinsey Global Institute, 2019; for recent exceptions). To date, narratives on workplace change tend to go from 'shop floor to Uber' (Ticona and Mateescu, 2018). In emphasising male-dominated occupations and industries, imaginings of a prototypical future worker have focused primarily on men's experiences, fears and aspirations. Such gender blindness is strikingly at odds with key trends including: the steady rise in women's labour force participation during the last century; ongoing occupational segregation; the inequitable distribution of unpaid work; and the persistence of discrimination and harassment at work (AWWF, 2017; Ramaphosa and Löfven, 2019; Thomlinson et al, 2018). As women's empowerment is a central pillar of business and policy agendas (DPI, 2018; United Nations, 2018; WGEA, 2018), a focus on gender within the future of work is critical to ensure that recent progress toward gender equity is not undermined.

Applying a gendered lens to the future of work

The current paper directly addresses this third shortcoming – gender blindness and bias – and seeks to provide a more balanced discourse on the future of work. When discussion of the future of work is filtered through a gendered lens, three important themes emerge. First, women and men enjoy varying degrees of representation across occupations and fields, creating differential exposure to the risks and opportunities of work transformation. Second, work recognition is unevenly distributed across gender, with women's work more likely to be invisible and/or devalued. Lastly, work-related rights such as autonomy, privacy and safety are distinctly shaped by gender identity.

Representation: Exposure to risk and opportunity

Entrenched gender segregation between and within occupations (Charles and Grusky, 2004) means that women and men are differently exposed to risk and opportunity within the changing work landscape. Women are overwhelmingly more likely to perform the routine tasks targeted for automation, and they are overrepresented in roles – clerical, service and sales positions – where automation is already well underway (Brussevich et al., 2018; Hegewisch, Childres and Hartmann, 2019). A recent International Monetary Fund (IMF) report anticipates that 11% of the female workforce, compared to just 9% of the male workforce, is vulnerable to technology-driven job displacement (Brussevich et al., 2018). Moreover, unlike in male-dominated fields where automation risk tends to cluster in the lowest paid jobs, technological change threatens women's jobs across skill and pay spectrums (Hegewisch, Childres and Hartmann, 2019).

Notably, while women are disproportionately located in high-risk jobs, they are simultaneously overrepresented in low-risk, high-growth fields such as health, education and social assistance, some of which are poised to expand given the ageing global demographic trend (Hegewisch, Childres and Hartmann, 2019; McKinsey Global Institute, 2019; OECD, 2019). Indeed, much of women's participation in the recently-created, platform labour market has, thus far, been in care-related fields (Ticona, Mateescu and Rosenblat, 2018; Hunt and Samman, 2019). Unfortunately, these feminised occupations consistently suffer from insufficient pay and high levels of insecurity (England, 2005; Piasna and Drahokoupil, 2017; García-Mainar, Montuenga and García-Martín, 2018). Thus, it might be said that women have the potential for significant employment gains, but in relatively 'bad' jobs. At the other end of the spectrum – high-value, high-growth jobs in science, technology, engineering and math (STEM) have proven difficult for women to break into in large numbers due to persistent social norms that challenge their entry and success in these fields (Charles, 2017; Sassler et al., 2017; Malmström et al., 2018). Until such gender barriers are addressed, STEM is likely to remain male dominated.

Moving forward, reskilling will be needed to address gaps between existing and required skills. To date, this responsibility has typically fallen on individual workers with many employers failing to develop comprehensive on-the-job retraining programs or to offer significant educational supports and incentives for their employees (Kalleberg, 2011; Hunt and Samman, 2019). When offered, these initiatives tend to target only the most highly skilled workers to maximize returns (OECD, 2019). As a result, those most at risk of automation – precarious and low-skilled workers – are the least likely to access and participate in ongoing training (Cooper, 2019; OECD, 2019).

The training crisis is particularly acute for women. Women are more likely than men to be in low-skilled and precarious jobs that do not offer employer-funded training, and they are more likely to be time poor – and thus less able to pursue self-initiated training – due to their disproportionate burdens in the realm of unpaid work (Wajcman, 2008; AWWF, 2017; Piasna and Drahokoupil, 2017; McKinsey Global Institute, 2019). In many low- and middle-income countries, reskilling for the digital age is even more difficult for women due to obstructed access to mobile phones and the internet (Hunt and Machingura, 2016; Rowntree, 2018). In high-income countries, digital access can also be patchy, and digital literacy and proficiency – what some now refer to as 'digital cultural capital' – varies across gender, class and race/ethnicity (Ticona and Mateescu, 2018; Ticona, Mateescu and Rosenblat, 2018; Ollier-Malaterre, Jacobs and Rothbard, 2019). Addressing women's (and other marginalised groups) technical access and skill deficiencies is therefore critical in order to harness the full potential of the digital economy (McKinsey Global Institute, 2019; Ramaphosa and Löfven, 2019).

Recognition: Visibility and reward

Women are also uniquely located within the 'human infrastructure' that supports new technologies (Mateescu and Elish, 2019). This human infrastructure represents vital, yet often hidden and undervalued work. This section outlines three emergent labour forms typically performed by women and often overlooked within dominant discourse.

Contrary to popular perception, digital systems are rarely fully autonomous. They require human labour, for instance, to teach AI systems through the sifting and categorizing of large quantities of digital data (Ekbia and Nardi, 2014; Crawford and Joler, 2018). Human labour is also needed to interpret algorithmic results in ways that can effectively inform decision-making (Maiers, 2017; Agrawal, Gans and Goldfarb, 2019). Labour addressing such 'computer lag' represents what researchers call 'computation labour' (Shestakofsky, 2017). In many cases, this human labour is faster and cheaper than automation and is therefore preferred (i.e., Amazon's use of 'artificial artificial intelligence') (Irani, 2015; Shestakofsky, 2017). By hiding human labour behind digital interfaces and code, technology companies propagate images of high-speed and low-cost innovation, lone geniuses and democratic workplaces. These powerful myths help sell products and services, but the result is the erasure of countless hours of human effort (Irani, 2015). Such erasures have a long and gendered history. Indeed, the word 'computer' originally referred to highly skilled female workers that coordinated between scientists and the machines that calculated their formulas, yet this labour has been largely left out of written histories of the computer (Light, 1999; Grier, 2005). Current computational labour – much of it again performed by women and individuals of the global south – is also at risk of going unrecognized and unrewarded (Chun, 2005).

A second form of work within the human infrastructure of new technologies is what we might call 'mediational labour', or the work people do to make automated systems intelligible or palpable for humans. In other words, mediational labour address 'human lag' in the digital age. During his 19 months of research within a software firm, ethnographer Ben Shetakofsky (2017) observed phone support workers devoting significant time and emotional energy helping customers overcome confusion and frustration with the company's digital interface. In retail grocery stores, Mateeschu and Elish (2019) report that self-checkout machines do not eliminate but reconfigure cashier and customer service work, with workers continuously monitoring customers' interactions with the machines to ensure a smooth transaction experience. This work performed by phone support and retail service professionals represents a form of 'emotional labour', which is an aspect of work that has long been undervalued and disproportionately performed by women (Hochschild, 1983).

A final emergent form of labour is what scholars call 'work-for-labour' (Standing, 2016). Work-for-labour refers to the uncompensated time and effort workers spend on tasks such as job searching, commuting and training. It is a consequence of the increased individualisation of work, which pushes risks and responsibilities away from employers and toward individual contractors (Forde et al., 2017). One study of platform workers in Southeast Asia and Sub-Saharan Africa found that, on average, people spent about 16 hours a week looking for work; said differently, approximately 40% of a standard workweek was devoted to unpaid work (Wood et al., 2019). Work-for-labour requirements also increase with the diffusion of social networking sites, such as LinkedIn, that require users to construct and maintain online profiles to reach potential employers (Sharone, 2017). This task of online impression management can be more difficult for older workers, women and culturally and ethnically diverse individuals who do not neatly fit the 'ideal worker' prototype (Acker, 1990; Williams, 2000). Ondemand labour providers, such as Uber, also require extensive work-for-labour, as travelling to pickups and waiting for passengers remain unpaid tasks. Within marketplace platforms, such as Care.com, where clients find and schedule contractors for particular tasks, work-for-labour is even more pervasive. On these platforms, workers are incentivized to constantly curate an online 'brand' and continually engage with the customer to maintain their digital reputation and maximize their employability (Ticona; Wood et al 2019). Marketplace platforms predominate in feminised industries, such as hospitality, cleaning and care, requiring women to perform a particularly large amount of free labour (Ticona, Mateescu and Rosenblat, 2018; Hegewisch, Childres and Hartmann, 2019; Hunt and Samman, 2019).

Recent research on emergent work forms suggest the reproduction and perhaps exacerbation of gender pay gaps, even when men and women perform similar tasks (Adams and Berg, 2017; Cook et al., 2018; Hegewisch, Childres and Hartmann, 2019). Men out earn women on labour platforms, a phenomenon explained by differences in platform tenure, task selection and working times, although it is important to note that women's choices are, perhaps more than men's choices, constrained by safety considerations. In the case of Uber for example, men's pay has been said to be higher, in part, because they engage in riskier driver behaviour (e.g., driving faster) (Adams and Berg, 2017; Cook et al., 2018). There is also evidence to suggest that men enjoy greater returns on their digital skills than women, with men earning an additional $740 annually for increases in digital work on the job, compared to only $436 (40% less) for women (Hegewisch, Childres and Hartmann, 2019). In order to create a more gender equitable future of work, it will be necessary for women's work to be more adequately recognised and valued.

Rights: Autonomy, privacy and safety

New technologies, shifting employment practices and more diverse worker demographics are also influencing changes in worker rights such as autonomy, privacy and safety. The promise of freedom and flexibility is a major feature of the future of work, where technological innovations facilitate 'workingfrom-home' arrangements and where platform workers are told they can become 'their own boss' and 'set their own hours' (Shahani, 2017). Such advances are important because schedule control is associated with a number of positive outcomes, such as improved worker well-being and work-family balance (Kelly, Moen and Tranby, 2011; Moen et al., 2011). However, increased autonomy is not always reflected in the lived experiences of those working in so-called flexible workplaces. One reason is that there are two types of flexibility: employee-driven flexibility (i.e., family-friendly policies and nonstandard work arrangements), which can facilitate improved work-life balance, and employer-driven flexibility (i.e., casual employment, just-in-time scheduling), deployed primarily to reduce labour costs and which often undermines work stability (Gerstel and Clawson, 2015; Hunt and Samman, 2019). Critically, employer-driven flexibility is more widespread in low-skilled work where women are overrepresented (Henly and Lambert, 2014; D'Cruz and Noronha, 2016). Further, while information and communication technologies (ICTs) can untether workers from the restraints of traditional workplaces, they also blur the lines between work and personal life (Ollier-Malaterre, Jacobs and Rothbard, 2019). Combined with an emphasis on decontextualized results, the flexibility offered via ICTs can lead to endless – and often highly intensified – work patterns (Perlow, 2012; Wood et al., 2019). While a lack of schedule control and expectations of overwork are difficult for both women and men, these factors can disproportionately affect women due to entrenched gender beliefs and practices regarding women's participation in domestic work (see Miller, 2019 for helpful review).

While the future of work is envisioned as a system that works on trust (i.e., Mazzella et al., 2016), workplace surveillance is omnipresent through mechanisms such as network monitoring, GPS tracking and wearable sensors (Hugl, 2013; Mateescu and Nguyen, 2019b). Pervasive data collection within the context of work raises important questions about its use, privacy and ownership, and these questions have important implications for marginalised or disadvantaged groups, including women. In terms of data use, social science researchers have documented how data collected through surveillance systems inform 'algorithmic management,' a practice by which companies use automated systems to guide worker actions (Lee et al., 2015; Mateescu and Nguyen, 2019a; Wood et al., 2019). Uber, for example, exercises considerable control over drivers through AI-informed, automated alerts that encourage people to begin or continue working, surge pricing heat maps that point workers toward particular work locations and consumer rating systems (Rosenblat and Stark, 2015). In other contexts, companies adopt systems of quantification and gamification to incentivize workers to measure and continually improve their own productivity, leading workers to engage in a high degree of self-policing and self-regulation (Moore and Robinson, 2016).

Informational asymmetries, created by stratified access to collected data, present a threat to all workers, and especially to women. For example, informational asymmetries undermine worker power by limiting workers' awareness and understanding of performance evaluation criteria. Such blind spots make it difficult for workers negotiate or contest performance review results (Mateescu and Nguyen, 2019b). Given evidence of gender and racial bias within automated HR practices, this problem is compounded for women and people of colour (Stone et al., 2015; Bort, 2019). In addition, as personal data are entering employment contexts, often through health and well-being programs, feminists highlight that biometric data could be used in nefarious ways to control women's bodies (Ebben and Kramarae, 2018). Women and people of colour are disproportionately exposed to informational asymmetries given their lack of representation in leadership positions (Groutsis, Cooper and Whitwell, 2018).

While expansive surveillance should theoretically increase workplace safety, little evidence supports this conclusion. In platform work, for instance, researchers have identified numerous threats to women's safety. For example, Ticona and Mateescu (2018) argue that while labour platforms clients have substantial access to worker profiles and information, workers have little information about those that hire them. When domestic platform workers then go into clients' private homes, they often do so without being able to conduct background research on the individual hiring them and with few institutionalised protections in place in the event things go wrong. Indeed, many platform workers report instances of inappropriate or threatening behaviour, including sexual harassment, while on the job (Ravenelle, 2019; Ticona and Mateescu, 2018).

Key Findings

- Current debates about the future of work are limited by a focus on job quantity over job quality, assumptions of technological determinism and a male lens.
- Gender is a defining characteristic of contemporary work, yet it is often absent in mainstream discussions regarding the future of work.
- Foregrounding gender illuminates three important themes when considering the future of work: representation, recognition and rights.
- Women and men are likely to experience the future of work differently due to entrenched occupational segregation. Women, on average, perform more routine tasks than men, putting their jobs at high risk of automation. At the same time, feminised fields such as healthcare, education and social assistance have low risk for automation and are predicted to grow in the future, but many of the jobs are defined by low pay and poor working conditions. Women continue to be largely excluded from high-quality jobs in STEM that are poised to shape the future of work.
- Women are less likely to receive on-the-job training or educational incentives, compared to men, due to their overrepresentation in low-skill, low-pay jobs.
- Three emergent labour forms – computational labour, mediational labour and work-for-labour – are hidden from view and undercompensated. Historically, women have performed a disproportionate degree of invisible and undervalued labour, and recent analyses identify gender pay gaps driven by both persistent and new employment mechanisms.
- Work flexibility is increasing, but this flexibility does not always benefit women. Women are more likely than men to be exposed to destabilizing, employer-driven flexibility as opposed to more family-friendly, employee-driven flexibility. Additionally, while ICTs expand where and when work can be done, they can also facilitate continuous work cycles that undermine work-family balance and worker well-being.
- Current data collection and use practices create informational asymmetries between employers and employees that can be particularly harmful to women given their lack of representation in leadership positions and evidence of bias in AI.
- Labour platforms undermine women's safety within remote, and often intimate workspaces, by limiting workers' access to information on those who hire them and by failing to provide guaranteed worker protections.

Conclusion

Gender is a defining characteristic of contemporary work, so why is it missing from mainstream discussions regarding the future of work? Without a focus on gender, depictions of work futures are incomplete and biased, and actions based on these depictions risk reproducing current inequities and missing out on potentially valuable opportunities for innovation and growth. This paper addresses the alarming gender gap within the existing conversation and shows why this is a problem.

Foregrounding gender illuminates three important thematic areas for thinking about the future of work: representation, recognition and rights. In terms of representation, women are positioned to be overrepresented in low-quality future jobs, and without significant investment in women's education, training and development, they are likely to be excluded from emergent opportunities within the new economy. Women are also at risk of being overlooked and undervalued to the extent that their computational labour, mediational labour and work-for-labour is obscured from sight and their digital contributions poorly rewarded. Lastly, emergent work forms affect the rights of women and men in distinct ways, with women particularly vulnerable to the consequences of unpredictable or continuous work schedules, unregulated data collection, biased automation and unprotected workspaces. Attention to these areas is needed to create a more gender-equitable future of work.

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