



THE UNIVERSITY OF
**WESTERN
AUSTRALIA**

Committee for



FACTBase

Bulletin 72, October 2020

Future of Work: The Shifting Demographics within Western Australia's Labour Force

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Summary of Key Findings

- Three trends have substantially altered the composition of the workforce in Western Australia and Greater Perth in recent decades: increasing female participation, ageing and cultural diversification.
- There has been a large increase in female participation in the workforce over the past 30 years associated with technological advancements and structural reform in the economy. Despite this, female labour force participation in Western Australia remains below that of male participation and industries of employment remain significantly gendered.
- Increasing female participation, decreasing gender segregation and retraining and upskilling workers in declining sectors to enable employment within growth industries has been identified as important in addressing labour force shortages and establishing a depth of talent and skills across industry sectors in the future.
- The feminisation of the workforce has been associated with substantial growth in the share of part-time relative to full-time employment in the state. While more women than men work part time, growth in part-time employment is evident among both male and female workers.
- Growth in part-time employment is associated with periods of economic downturn and current statistics show that rates of unemployment are lowest among males and females seeking part-time employment. While part-time and non-traditional forms of employment (such as contract work) can deliver benefits to employees and employers, it has also been associated with underemployment, underutilisation of the labour force and job insecurity.
- The ageing of Australia's labour force, evidenced by a rapidly increasing share of workers aged over 60 years, has been identified as a risk for the State's future workforce, with the potential for a shortage of skilled labour as older workers shift to part-time work or retire from the labour force.
- There is a risk that an ageing workforce will reduce access to the skills needed for industries and companies to successfully adopt and adapt to new technologies. Ensuring older workers are adequately trained in the effective use of technological tools will therefore be an important component in retaining a skilled and productive workforce into the future.
- In 2016 a higher proportion of the labour force in Western Australia was born overseas than in any other major city in Australia. If well managed and promoted, this could enhance the state's global reputation as culturally diverse and assist employers in addressing the skill and worker shortages generated by technological change and advancement, industry growth or the ageing of the existing workforce.
- Indigenous Australians have a disproportionate risk of being negatively impacted by technological advancement due to existing under-representation in the labour force and disadvantages such as lower levels of educational attainment.



Introduction

Shifting demographics, changing social norms and values, and the transformation of the national and state economy have substantially altered the composition of the workforce. There are three trends that have significantly changed workforce composition in Greater Perth and Western Australia. The first trend is the increase in female participation in the workforce. This has been associated with a substantial rise in the ratio of part-time to full-time employment. The second trend is the ageing of Australia's labour force, with a rapidly growing proportion of workers aged over 60 years. The third trend is the cultural diversification of the Western Australian workforce. In 2016, a higher proportion of Greater Perth's labour force was born overseas than in any other major city in Australia.

These trends have occurred during a period of change in the industrial composition of jobs from non-service to service industries and at a time when the adoption and fusion of new technologies, including artificial intelligence, is changing work, the workforce and workplaces in Australia. They are also associated with shifting social attitudes towards male and female roles in the workforce and substantial changes to industrial relations policy and legislation, which have orchestrated a shift from collective to individual enterprise agreements and provided the capacity for flexible and personalised work arrangements (Mulvey & Fells, 1994).

These changes are expected to continue, and in the case of technology accelerate, over the coming decade. In the

short- to medium-term future, this could result in workers whose jobs involve routine and manual tasks becoming susceptible to redundancy, while employers struggle to fill vacancies for newly created jobs requiring workers able to perform non-routine, cognitive, creative and abstract tasks. These changes could also result in a continued shift towards part-time and contract work, benefitting employees seeking flexible employment options, yet heightening the risk of underemployment for others.

This bulletin examines the feminisation, ageing and cultural diversification of the workforce in Western Australia and Greater Perth, and the relationship between these trends and structural reform in the economy, technological change and future of work projections.

Increased Labour Force Participation Among Females

The demographics of the Western Australian labour market have markedly shifted over the past 50 years. In February 1978, 63.5% of Western Australians participated in the labour force; by January 2020 this had increased to 68.3% (Australian Bureau of Statistics [ABS], 2020a).

The most substantial change in the make-up of the labour force has been the heightened participation of females, as illustrated in Figure 1. In 1978, 46.4% of working age females in Western Australia participated in the labour force; by January 2020 this had increased to 62.5% (ABS, 2020a). This was associated with a decline in the proportion of males participating in the labour force, which fell from 81% to 74.3% over the same period. Growth in female participation in the

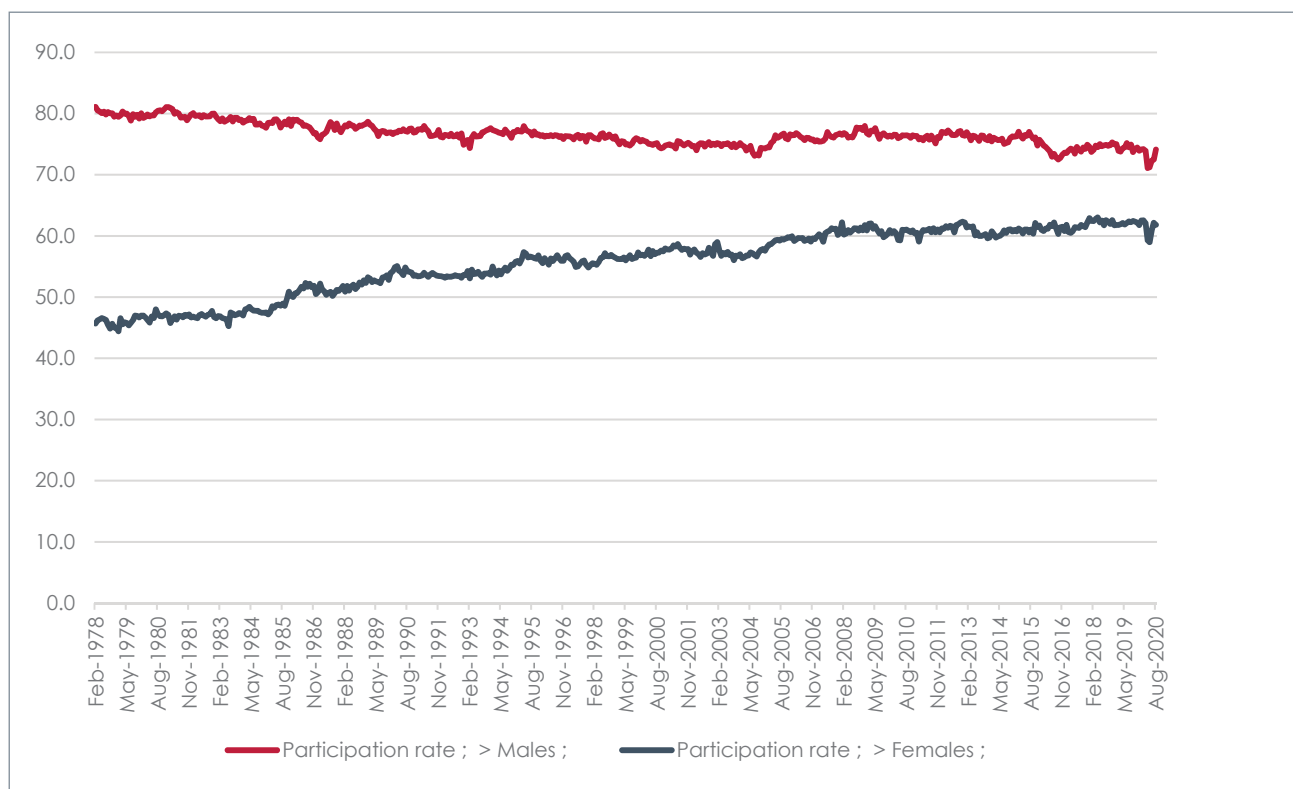
labour force primarily occurred in the 1980s and 1990s and was a product of shifting social values and attitudes towards the role of women in the workforce, civil and women's rights activism in the 1960s and 1970s, and associated federal and state legislative change to address discrimination in the workplace.

In Western Australia, the *Equal Opportunity Act 1984 (WA)* was enacted by the Western Australian Parliament in 1984 and came into operation in July 1985. Its objectives included the elimination of discrimination against persons on the grounds of sex; marital status; pregnancy; family responsibility or family status; race; religious or political conviction; impairment; age or gender in the areas of work; the elimination of sexual harassment

and racial harassment in the workplace and in educational institutions; and the recognition and acceptance of the equality of men and women.

Furthermore, in the 1990s, changes to industrial relations legislation also increased access to flexible work arrangements, which reduced the barriers to workforce entry for some women (Mulvey & Fells, 1994). This occurred at the same time as structural change in the Western Australian economy accelerated, with a decline in employment in traditionally male dominated non-service industries such as manufacturing and growth in employment in female dominated service sector industries such as health, social assistance and education.

Figure 1: Labour Force Participation Rate Males and Females Trendline – Western Australia 1978 to 2020



Source: ABS, 2020a

However, social, workplace and structural changes stabilised during the 2000s and the female labour force participation rate in Western Australia remained relatively steady in the 15 years from 2005–2020 (ABS, 2020a).

Although male and female participation rates fell sharply from 67.9% in March to 65% in May 2020 as COVID-19 associated restrictions were introduced, they returned to 67.9% in the period from May to August 2020. Unemployment rates among males and females also increased sharply over this period. In Western Australia, unemployment rates among males increased from 5.2% in March 2020 to 6.9% in August 2020 whereas the corresponding rates of unemployment among females grew from 5.6% to 7.1% (ABS, 2020a). Despite being a significant increase, these rates sit well below the unemployment rates experienced in the early 1990s, which reached 13% in Greater Perth and 11.4% elsewhere in the State (ABS, 2020a).

Although female participation has increased over time, it remains below the participation rate for men, and boosting the female participation rate has been identified as important in addressing future labour shortages and diversifying the skills available in the workforce to meet future industry needs (Davis, 2020a; Fitzsimmons & Callan, 2015).

However, multiple barriers to increased female participation in the labour force remain and the industries and occupations that males and females work in remain significantly segregated by gender (Fitzsimmons & Callan, 2015). The most common professional occupations undertaken by women in the State include health professionals; education professionals; and business, human resource and

marketing professionals (Figure 2; ABS, 2020b). Jobs as carers and aids, and specialist, hospitality or retail sales managers are also some of the most common occupations undertaken by women in the State.

Consequently, females in the Western Australian labour force in 2020 are most likely to work in the health, education and retail sales sectors. Women are least likely to work in the non-service industries such as mining and electricity, gas, water and waste services, and in occupations associated with science and technology, construction, automotive and electrotechnology and telecommunications trades (ABS, 2020c). Females are also under-represented in senior leadership roles across sectors and receive lower average rates of remuneration than men (ABS, 2020c; Fitzsimmons & Callan, 2015). This arguably hinders growth in female labour force participation, leads to the inefficient utilisation of male and female talents across industries, and limits the potential for workforce growth within key sectors of future importance, such as science and technology.

This is not unique to Western Australia. In Australia and globally, women are under-represented in science, technology, engineering and mathematics (STEM) fields associated with the design, operation and management of new technology. The under-representation of females in the information and communications technology (ICT) sector has also been identified as a barrier to future growth in this sector in Australia, and as an obstacle to meeting projected demand for skilled labour across all sectors as industries increasingly develop and adopt advanced technologies (ACS, 2015; EIGE, 2020; Workplace Gender Equality Agency, 2020).

In addition to the under-representation of women in STEM fields, the 2019 Australian Digital Inclusion Index (ADII) identified a gender gap in digital inclusion, with women found to be less likely to have access to digital technology, less capacity to afford technology and less likely to have a positive attitude towards the impact of technology on their lives (Thomas et al., 2019). Despite this, women were found to have better basic digital skills and to be slightly more likely to use technology for accessing content, communication, transactions, commerce, media and information than men (Thomas et al., 2019). The digital inclusion gender gap is most significant for woman aged over 65 years and is the widest for the group aged 75–79 years. Alternatively, females aged 14–24 years achieve a higher level of digital inclusion than males in the same age group (Thomas et al., 2019). In regard to the potential for females to reskill or upskill to adapt to technological change, this could be limited by heightened caring responsibilities as well as an accessibility gap (Workplace Gender Equality Agency, 2020).

Another factor that could disadvantage female participation in the workforce in the future includes the over-representation of women in industries such as retail sales, administrative services and food and accommodation services, which have been identified as being among the industries most susceptible to automation and technological change (Davis, 2020a). These industries are characterised by low barriers to entry in terms of qualification requirements, flexible work arrangements and the provision of job types that social norms and expectations have traditionally categorised as feminine (Department of Jobs and Small Business, 2019).

Sectors such as health and education also have a high proportion of feminised roles and while these industries are adopting and adapting to new technology, they are less susceptible to automation (Davis, 2020a; Department of Jobs and Small Business, 2019). Growth in these sectors could temper future of work impacts for women if gender segregation remains a dominant feature of the workforce. However, opportunities for reskilling or upskilling will be required to enable females in sectors with declining employment to shift to sectors experiencing employment growth.

By contrast, in 2020 men in Western Australia are most likely to be employed in non-service and professional service industries including construction

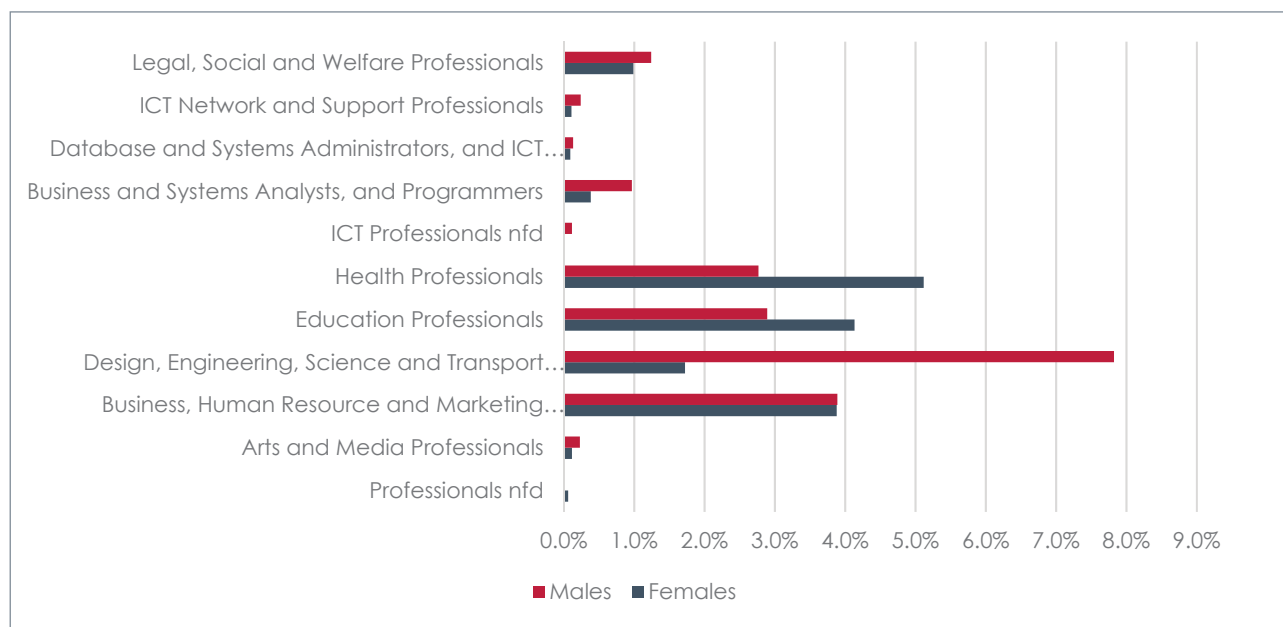
and manufacturing and the professional, scientific and technical service sectors (ABS, 2020c). Males are also more likely to be employed full-time (ABS, 2020a).

Over the past 50 years, some male dominated non-service industries and occupations, most notably manufacturing, have been significantly impacted by technological and structural change in the economy, leading to declining employment (Davis, 2020a). Continued technological transformation in these sectors and other sectors with capacity for automation such as construction, transport and mining, has the potential to create future reductions in employment or a significant mismatch between the skills in the labour force and the skills needed by employers (Davis,

2020a). Retraining and upskilling workers in these sectors to adapt to technological change is therefore important, as is the development of appropriate skills and qualifications among males and females in the emerging workforce.

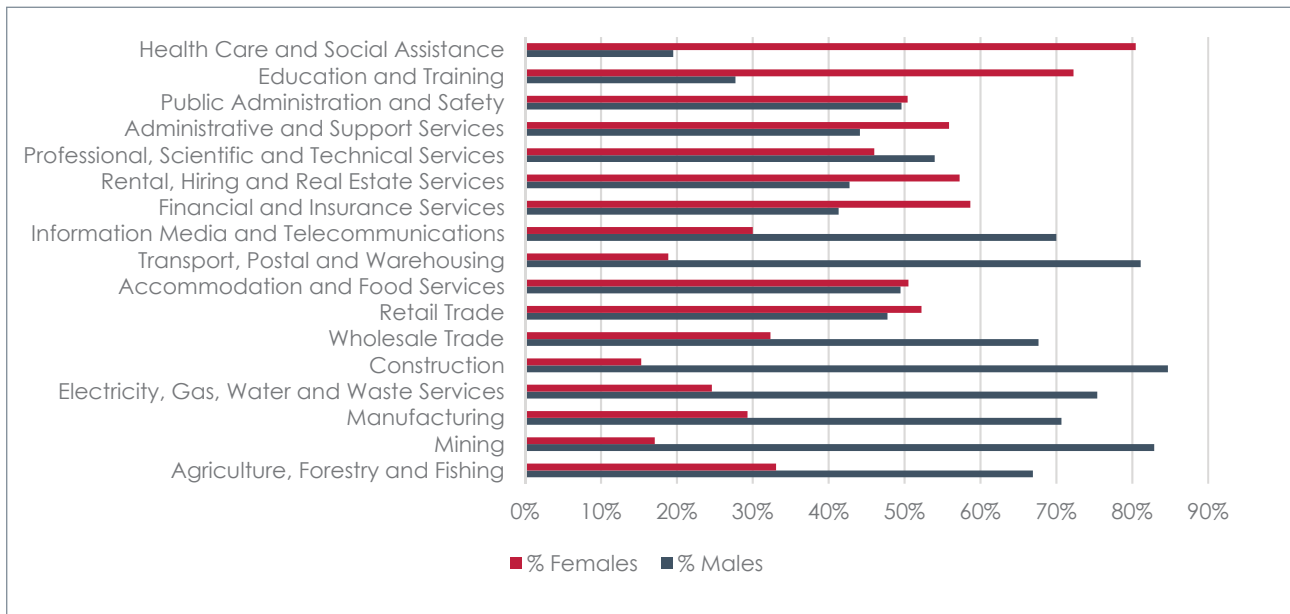
The variation in male and female industries of employment in Western Australia is currently reflected in the qualifications of the labour force in Greater Perth (Figure 4). Most notable is the dominance of Certificate III and IV level qualifications and secondary education level qualifications among males in the workforce and the higher rates of Graduate Diploma level qualifications among females (ABS, 2017).

Figure 2: Proportion of Males and Females in Professional Occupations in the Labour Force – Western Australia May 2020



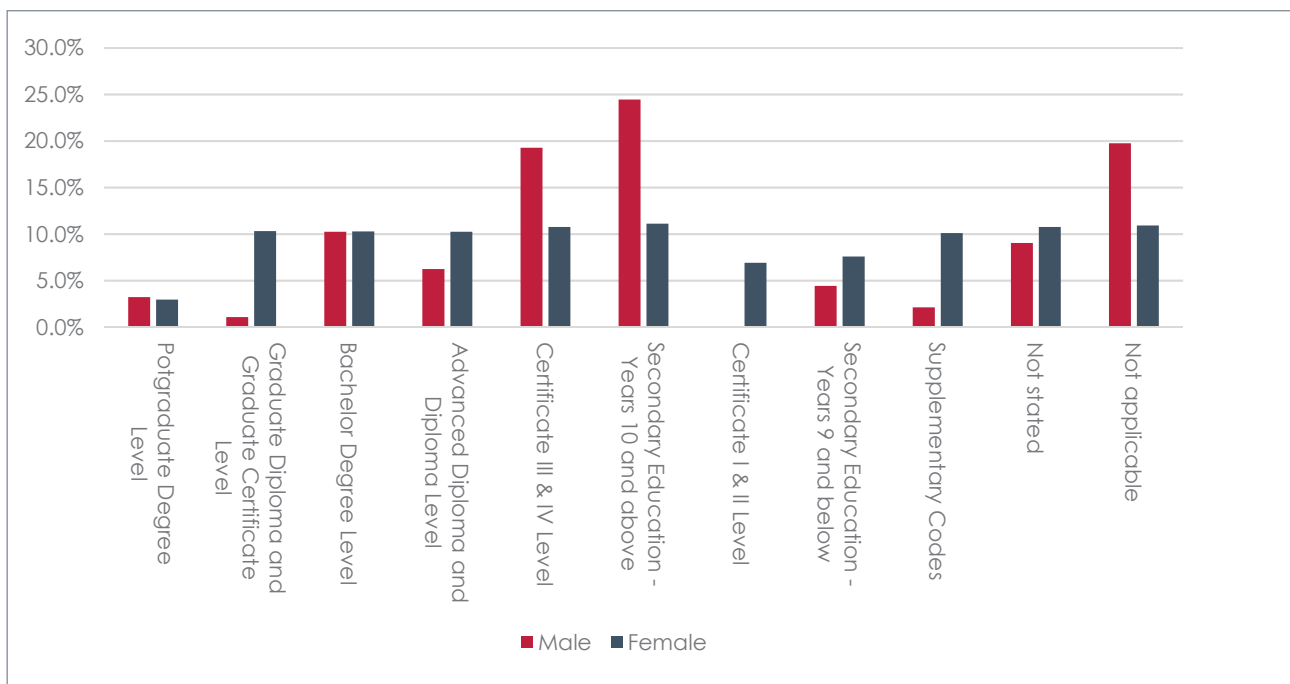
Source: ABS, 2020b

Figure 3: Employees for Industry by Gender – Western Australia May 2020



Source: ABS, 2020c

Figure 4: Highest Qualification of Males in the Labour Force – Greater Perth 2016



Source: ABS, 2017

The proportion of the labour force employed part-time more than doubled from 15% in February 1978 to 31% in January 2020. Females are more likely to work part-time than males and this growth has been connected to heightened female labour force participation, yet it was also associated with an increase in the share of males in the labour force who worked part-time, which grew from 4% in 1978 to 17% in 2020 (ABS, 2020c). Growth in other non-traditional forms of employment such as 'owner managers of incorporated and unincorporated enterprises without employees' also increased over this period to account for 13% of employed persons in the labour force in Australia by August 2020, with males accounting for 64% of these workers (ABS, 2020b). This is commonly identified as contract work or the 'gig economy'.

Growth in part-time work and non-traditional work has been attributed to factors of supply and demand. Prior to the 1990s, researchers often considered part-time employment to reflect an underutilisation of the work force, while contract or 'gig' work was considered less secure than traditional full-time or part-time employment (Abhayaratna et al., 2008). Although current research suggests this remains an issue, there is also increasing recognition that some employers and employees prefer part-time and non-traditional employment (Abhayaratna et al., 2008).

Cassidy and Parsons (2017) noted that one-quarter of workers employed in a part-time capacity in Australia in 2015 worked part-time not by choice but because they could not find a full-time job or because part-time hours were a requirement of their job. However, most part-time workers choose part-time work because it enables them to balance the need to earn a living with other

activities and responsibilities such as studying, family time or caring (Cassidy & Parsons, 2017). These workers are most likely to be either under 25 years of age or female (Cassidy & Parsons, 2017).

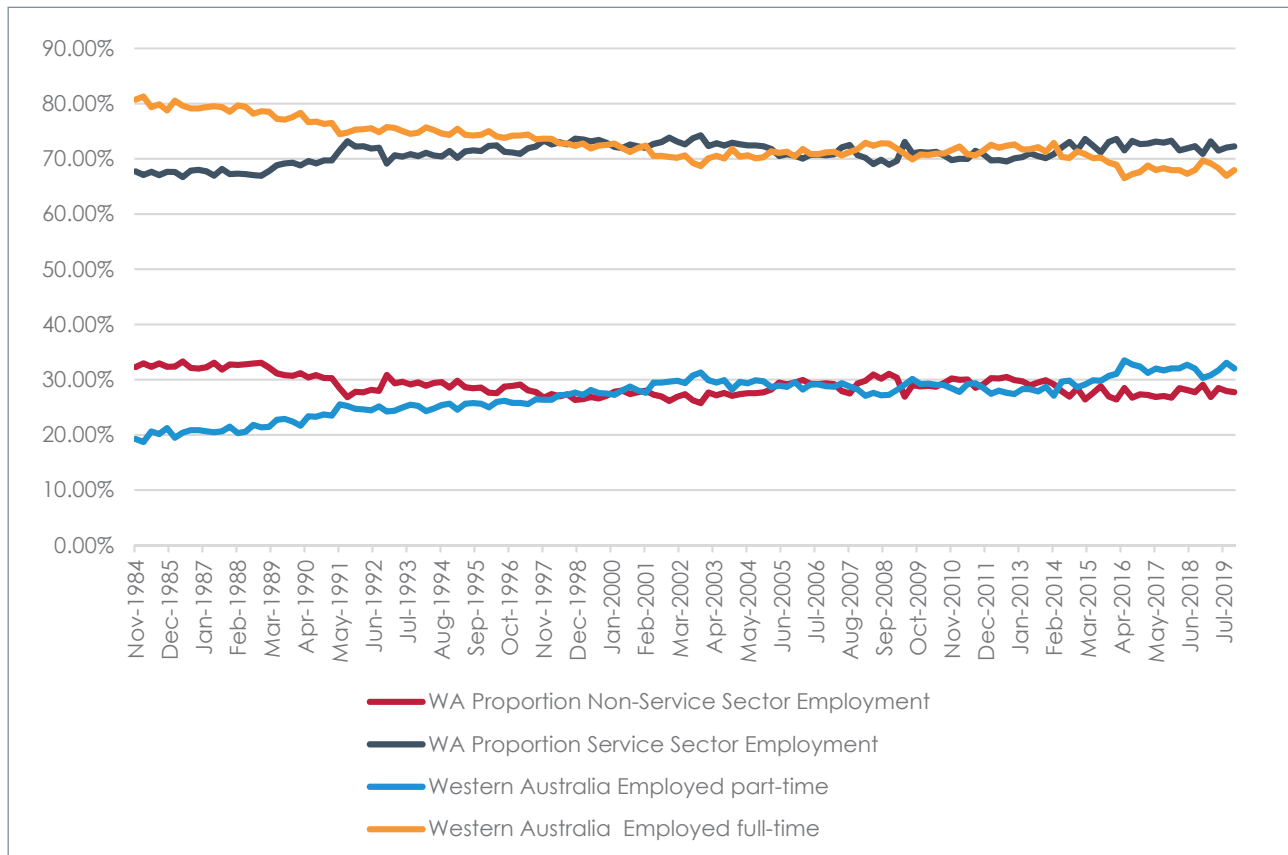
Part-time work and other forms of non-traditional and flexible employment, including contract employment or labour relocation such as fly-in fly-out (FIFO) employment, can also be beneficial for employers as it provides a pool of workers that can be used to adjust to the business cycle. It can also increase organisational flexibility by, for example, enabling them to better respond to the decoupling of traditional working locations, times and operating hours. For example, FIFO employment has enabled mining and resource companies to increase and decrease their remote workforce to meet sector needs over time without requiring workers to commit to moving long distances (Productivity Commission, 2014). Similarly the liberalisation of retail shopping hours resulted in more people working on a part-time basis. Technology has also allowed firms to manage staff hours more efficiently and facilitated the automation of certain processes. Consistent with these developments, the share of part-time and contract employment has risen in all industries, including industries traditionally dominated by full-time employment (Abhayaratna et al., 2008; Cassidy & Parsons, 2017).

Bishop, Gustafsson and Plumb (2016) found that since the 1990s, businesses have increasingly responded to changes in labour demand by changing the hours worked by their employees rather than the number of employees. They identified a range of factors that influenced this shift, including less severe economic downturns since the 1990s; increased cost of hiring and training new

employees; and labour market reforms in the late 1980s and early 1990s, which have made it easier for firms to bargain directly with employees on wages and working arrangements. The authors suggested that the process of adjusting the hours of employees may have tempered the rise in unemployment during recent downturns.

Research also indicates that the benefits of a part-time labour force are most evident in labour intensive industries such as health and retail rather than capital intensive industries such as mining (Abhayaratna et al., 2008). Consequently, structural reform in the economy as evidenced by service sector employment growth has also played a role in the shift towards part-time jobs (Figure 5). Statistics show that as the share of employment in service sectors such as health and community assistance grew over the past 40 years, so did the share of part-time employment (ABS, 2020d). As previously noted, in Western Australia the shift from non-service to service sector jobs was most rapid during the 1980s and 1990s; structural change in the Western Australian economy over the past 20 years has been relatively muted, reflecting employment growth in mining and associated sectors such as construction and transport (Davis, 2020a).

Figure 5: Service Industry Growth and Part-Time Employment Growth – Western Australia



Source: ABS, 2020d

ABS (2020c) data shows that males and females who work part-time are most likely to work in service sectors such as health and social assistance; retail; accommodation and food services; education; and professional, scientific and technical services. Yet the shift to the service sector does not completely account for the part-time employment growth. The proportion of part-time employment has increased in a wide range of sectors including some non-service industries such as manufacturing.

For example, in 1984, 11% of construction sector workers in Western Australia worked part time. By 2000 this had increased to 13% and by 2020 had grown to 16%. Similarly, while the total number of people employed in the manufacturing sector

in the State has declined over the past 40 years, the number and proportion of part-time employees in the sector has increased (ABS, 2020c).

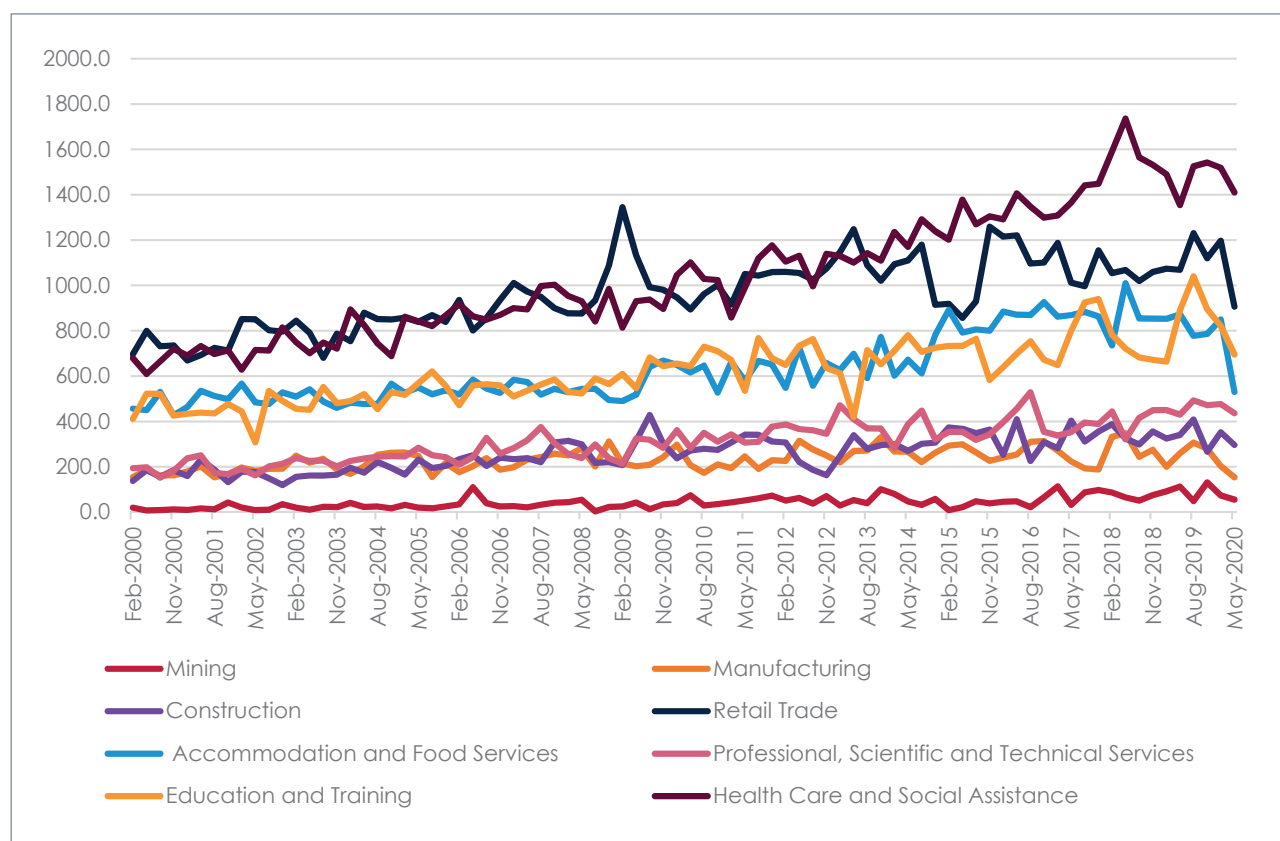
In 1984, 7% of the employment manufacturing workforce in Western Australia worked part-time. By 2000 this had increased to 12% and by 2020 had grown to 16% (see Figure 6 for the number of workers employed part-time). This supports the supposition that there are benefits to part-time employment for employees and employers across sectors and suggests that increased automation of tasks within industry sectors such as construction or mining could lead to growth in part-time work (ABS, 2020c).

Moreover, the hypothesis that part-time employment increases

during periods of economic downturn is also supported by Western Australia's labour statistics, which show relatively stable rates of part-time employment during the period of rapid economic growth in the 2000s followed by increasing part-time employment and lower rates of full-time employment as rates of economic growth slowed and stabilised in the 2010s (Figure 7; ABS, 2020a).

Looking forward, this suggests that growth in the part-time labour force could be a key feature of the COVID-19 associated recession for both females and males, particularly in heavily impacted sectors such as the retail sales; food and accommodation services; and education and training.

Figure 6: Number of Workers Employed Part Time by Industry – Western Australia



Note: Number of workers recorded in thousands.
Source: (ABS, 2020c)

This is supported by current employment data, which indicates that in August 2020 unemployment in Western Australia was lowest for males (5.2%) and females (6%) seeking part-time work and highest for males (7.1%) and females (8%) seeking full-time work (ABS, 2020a). As a result, in August 2020, unemployment in Western Australia was lowest for males (5.2%) and females (6%) seeking part-time work and highest for males (7.1%) and females (8%) seeking full-time work (ABS, 2020a).

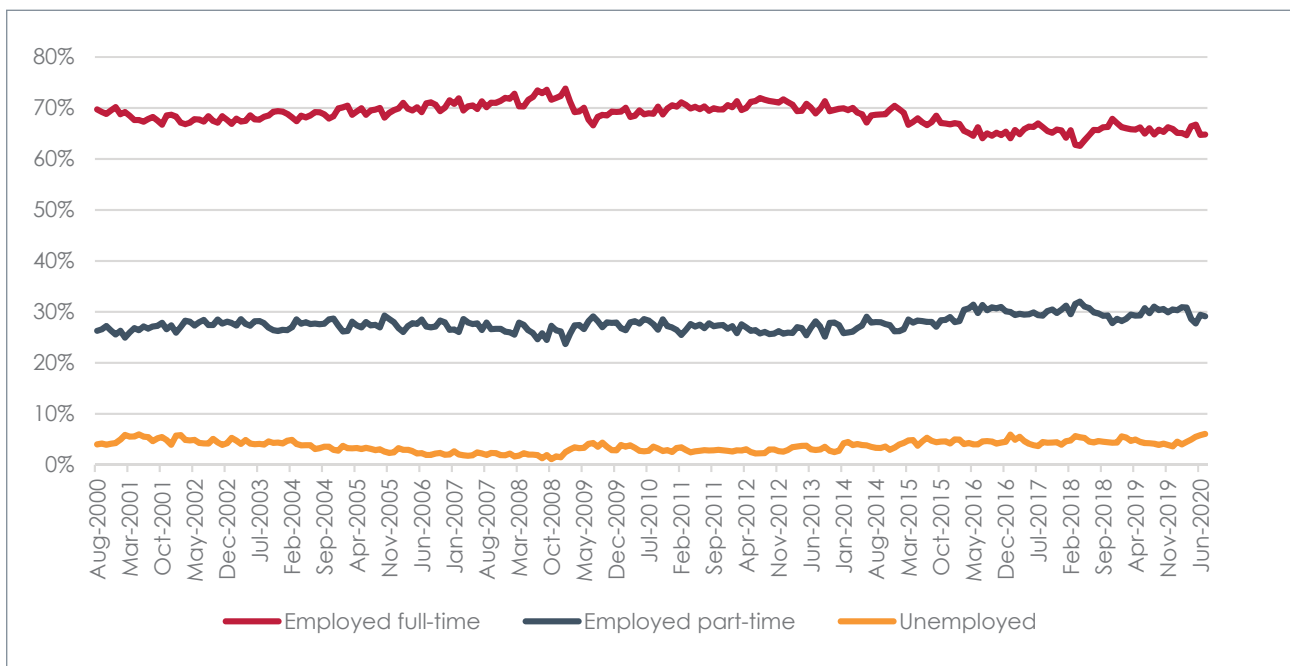
This is likely to reflect the impact of COVID-19 on female dominated industries such as food and accommodation and retail sales, as well as a broader shift to part-time labour to adapt to reduced revenue and altered business conditions

(Davis, 2020b). Industries susceptible to automation such as manufacturing, transport, sales, construction and administrative services could also continue to experience an increase in male and female part-time and non-traditional employment in the coming decades.

While some workers will make this shift voluntarily, there is likely to be an increase in the proportion of male and female part-time workers who want to and can work additional hours, leaving spare capacity in the labour market.



Figure 7: Growth in Full-Time and Part-Time Employment and Unemployment – Western Australia



Source: ABS, 2020a



Ageing of the Workforce

Another factor influencing growth in part-time work is the ageing of the workforce in Australia and Western Australia. This has been pronounced over the past 20 years and is consistent with a global trend towards an increase in the number and proportion of older people within populations, particularly in developed nations (ABS, 2020f; United Nations, 2019). Figure 8 compares the age of Western Australia's workforce in 2000 to that in 2020 and shows a substantial growth in the proportion of the workforce aged over 50 years and a significant decline in the proportion of the labour force aged 29 years or younger (ABS, 2020f).

Notably, the proportion of workers aged over 60 years in the labour force increased from 11% in 2000 to 31% in 2020 (ABS, 2020a). More than half (54%) of people aged over 60 years in the labour force in 2020 worked part-time. Growth is particularly evident in the proportion of females in the labour force aged over 60 years working part-time, which increased from 5% in 2000 to 16% in 2020 (ABS, 2020a). According to Cassidy and Parsons (2020), this is due to factors such as transitioning towards retirement; a need for flexibility to care for relatives; personal illness or disability; and a need to top-up superannuation or pension income.

The ageing of the workforce in Western Australia could have significant consequences for the State's future workforce, most notably by reducing access to skilled labour as older workers transition to part-time work and leave the labour force. Some industries are more likely to be impacted than others. ABS census data indicates that in 2016, workers aged over 60 years were most likely to be employed in professional, managerial and clerical roles (Table 1). The most common professional occupations were education (31%), health (23%), and business, human resources and marketing (22%) (ABS, 2017).

Figure 8: Age Profile of the Western Australian Labour Force 2000 and 2020



Source: ABS, 2020f

Table 1: Most Common Occupations of Workers Aged Over 60 Years and Under 30 Years in the Labour Force – Western Australia 2016

	Managers	Professionals	Technicians and trades workers	Community and personal service workers	Clerical and administrative workers	Sales workers	Machinery operators and drivers	Labourers
Workers aged over 60 years	17%	21%	12%	8%	16%	7%	9%	10%
Workers aged under 30 years	5%	15%	19%	15%	10%	17%	6%	13%

Source: ABS, 2017

Professional males aged over 60 years in the workforce are most likely to work in business, human resources and marketing (28%); design, engineering, science and transport (22%); and education (19%). Females aged over 60 years are most likely to work in education (38%) and health (30%) (ABS, 2017). Consequently, the proportion of workers aged over 60 years in some of these sectors is equal to or exceeds 10% (Table 2).

There is also evidence that the current COVID-19 associated recession could exacerbate the problems associated with the ageing of the workforce by accelerating the exit of workers aged over 60 years while generating higher rates of unemployment among young workers, limiting the potential for skill development in the short-to medium-term. To date, ABS payroll data indicates that payroll jobs for older workers declined most significantly from March to September 2020, followed by jobs for workers aged between 20 and 29 years (Table 3). This could reduce access to skilled labour as economic growth recovers from the current recession.

Table 2: Proportion of Over 60s in Key Professional Occupations – Western Australia 2016

Profession	Percentage of the workforce aged over 60 years
Business, human resources and marketing professionals	9%
Design, engineering, science and transport professionals	7%
Education professionals	13%
Health professionals	10%
Legal, social and welfare professionals	15%

Source: ABS, 2017

Table 3: Change in Payroll Jobs by Age and Sex – Western Australia March to September 2020

Age and sex categories	Percentage change between 14 March and 5 September (change since 100 th case of COVID-19)
Total	-0.9%
Males	-2.3%
Females	-0.3%
Age under 20	8.2%
Age 20–29	-1.6%
Age 30–39	-0.6%
Age 40–49	0.1%
Age 50–59	-0.3%
Age 60–69	-3.3%
Age 70+	-8.7%

Source: ABS, 2020e



An additional observation regarding workforce ageing is that ICT is the least common profession among workers aged over 60 years, and the ICT sector employed just 4% of males and 1% of females aged over 60 years in 2016 (ABS, 2017). Limited representation of older workers in the ICT sector is not surprising given the small size of the sector in Western Australia.

While 10% of the professional workforce in Australia resides in Western Australia, the State accounts for just 6% of the national ICT workforce (ABS, 2020b). The ICT sector and profession is also relatively young, emerging in the mid to late twentieth century, compared to other major employment occupations such as farmers, miners, builders, teachers or doctors, which have been in existence for centuries. However, it does highlight another potential future of work issue – the risk that an ageing workforce could act as a barrier to the adoption and acceptance of new technologies.

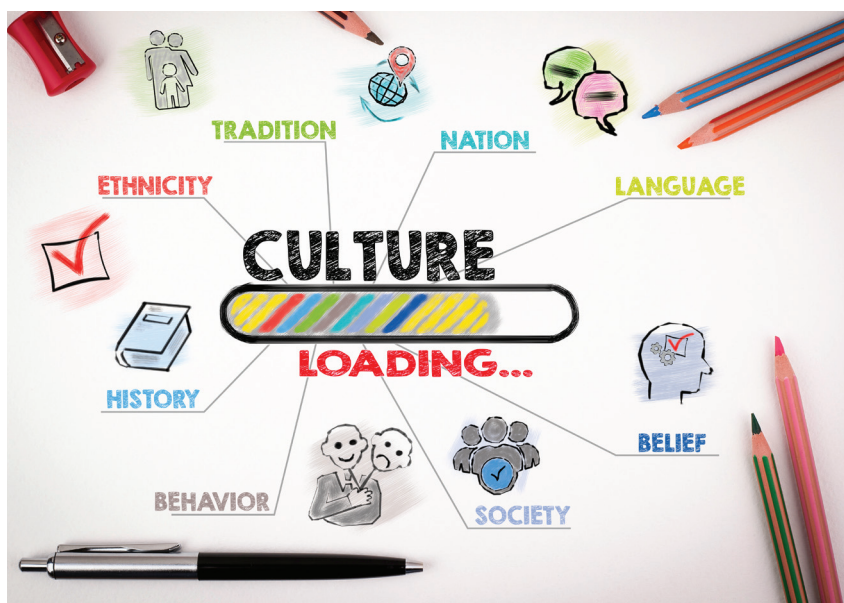
According to published literature, there is the potential for new technology to assist older workers to capitalise on their cognitive strengths and overcome age-related limitations with respect to working memory, physical strength, visual acuity and mobility. In addition, technology has been identified as a tool with the potential to reduce age discrimination and enhance training, social support and networking opportunities (Thompson & Mayhorn, 2012).

Yet, despite this potential, technology has also been known to cause new problems and contribute to the challenges faced by older workers. These problems stem from reduced training in or use of technology among older workers, limiting the capacity for older workers to use technology effectively and generating attitudinal barriers to technology acceptance. As a result, researchers have identified a negative correlation between an employees' age in the workforce and the probability of technology adoption (Meyer, 2011).

In Australia, digital inclusion has been found to decline as age increases. The 2019 ADII found that people aged 14–49 years all have similar levels of access, capacity to afford and ability to use digital technology. However, those aged 50–64 years recorded an ADII score of 60.4, seven points lower than the score for those aged 35–49 years. The largest gap was found to be in the ability of older Australians to use digital technology (Thomas et al., 2019).

Technology design and workforce training are therefore critical areas that must be considered to address these issues, advance the success of older adults who remain in the workforce and facilitate the reintegration of older workers who seek re-employment after retirement (Thompson & Mayhorn, 2012). Also important are strategies and policies aimed at increasing the proportion of young and skilled workers in the economy through migration.

Cultural Diversity in the Labour Force



The third key trend evident in the Western Australian workforce in recent decades has been an increase in cultural diversity. Cultural diversity in the workforce and workplace is important because, if well managed, it can enhance the ability for metropolitan regions and companies to attract and retain skilled and talented workers from around the globe (Farnsworth et al., 2003). This can

assist employers in addressing the skill and worker shortages generated by technological change and advancement, industry growth or the ageing of the existing workforce.

ABS statistics indicate that in 2016, the labour force in Western Australia was characterised by the lowest proportions of workers born in Oceania, and the highest proportions of workers born in

North Western Europe, South Eastern Asia and Sub-Saharan Africa when compared to the other major states in Australia (Table 4; ABS, 2017).

However, it is also evident that workers born in Oceania and North Western Europe dominate the labour force in Western Australia and that some industries are more culturally diverse than others (Table 5). In 2016, the industry sectors in Western Australia with the most diverse workforces were manufacturing, accommodation and food services, professional, scientific and technical services, administrative and support services and health care and social assistance. The workforce in the agriculture and mining sectors in the State was among the least diverse.

Table 4: Origin of the Labour Force by Greater Capital City 2016

	Western Australia	New South Wales	Victoria	Queensland	South Australia
Oceania and Antarctica	65%	69%	70%	80%	76%
North West European	13%	6%	5%	6%	8%
South East Asia	6%	5%	5%	3%	3%
Southern Central Asia	4%	5%	7%	8%	4%
Sub-Saharan Africa	4%	1%	2%	2%	1%
North Eastern Asia	2%	5%	4%	3%	2%

Source: ABS, 2017

Table 5: Workforce by Industry and Region of Birth – Western Australia

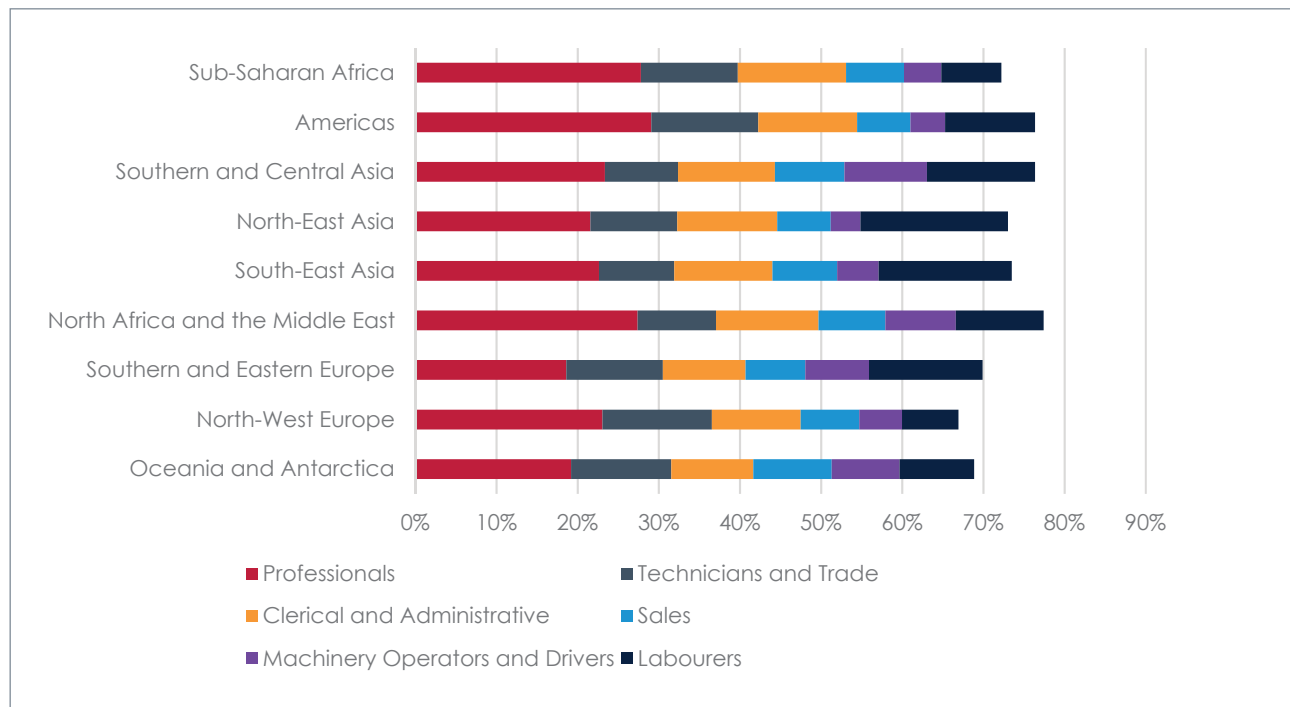
	Oceania and Antarctica	North West Europe	South East Asia	North East Asia	Southern Central Asia	Sub-Saharan Africa
Agriculture	79%	7%	4%	3%	1%	2%
Mining	73%	11%	3%	2%	2%	4%
Manufacturing	61%	13%	9%	3%	4%	4%
Electricity, gas, water and waste Services	65%	16%	5%	1%	3%	5%
Construction	69%	16%	3%	2%	2%	3%
Wholesale trade	65%	13%	6%	3%	3%	4%
Retail trade	69%	11%	5%	2%	4%	3%
Accommodation and food services	55%	9%	12%	7%	6%	3%
Transport, postal and warehousing	66%	11%	4%	2%	7%	4%
Information media and telecommunications	67%	15%	4%	2%	5%	4%
Financial and insurance services	65%	15%	6%	2%	4%	5%
Rental, hiring and real estate services	69%	14%	5%	2%	2%	4%
Professional, scientific and technical services	60%	15%	7%	2%	4%	6%
Administrative and support services	58%	13%	6%	3%	6%	5%
Public administration and safety	68%	16%	4%	1%	4%	3%
Education and training	68%	14%	4%	1%	2%	4%
Health care and social assistance	56%	17%	7%	2%	6%	7%
Arts and recreation services	71%	12%	6%	2%	2%	3%
Other services	65%	14%	6%	2%	3%	4%

Source: (ABS, 2017)

At an occupational level it is apparent that workers born in North Western Europe, Asia and Sub-Saharan Africa are more likely to work in professional, clerical, administrative and labouring occupations than workers born in Oceania (Figure 9; ABS, 2017). Migrants from Southern and Central Asia are over-represented in the ICT sector in New South Wales, Victoria and Western Australia, where they make up 5% of the workforce and 11% of ICT professionals in the State (ABS, 2017).

Strong representation within professional service industries and health care and social assistance is likely to reflect domestic migration policy focused towards attracting migrants skilled in occupations where a shortage has been identified in the State. It is apparent that these policies play an essential role in meeting the demand for skilled labour and will be central to building a resilient labour force in the future.

Figure 9: Western Australia Labour Force: Occupation by Region of Birth 2016



Source: ABS, 2017

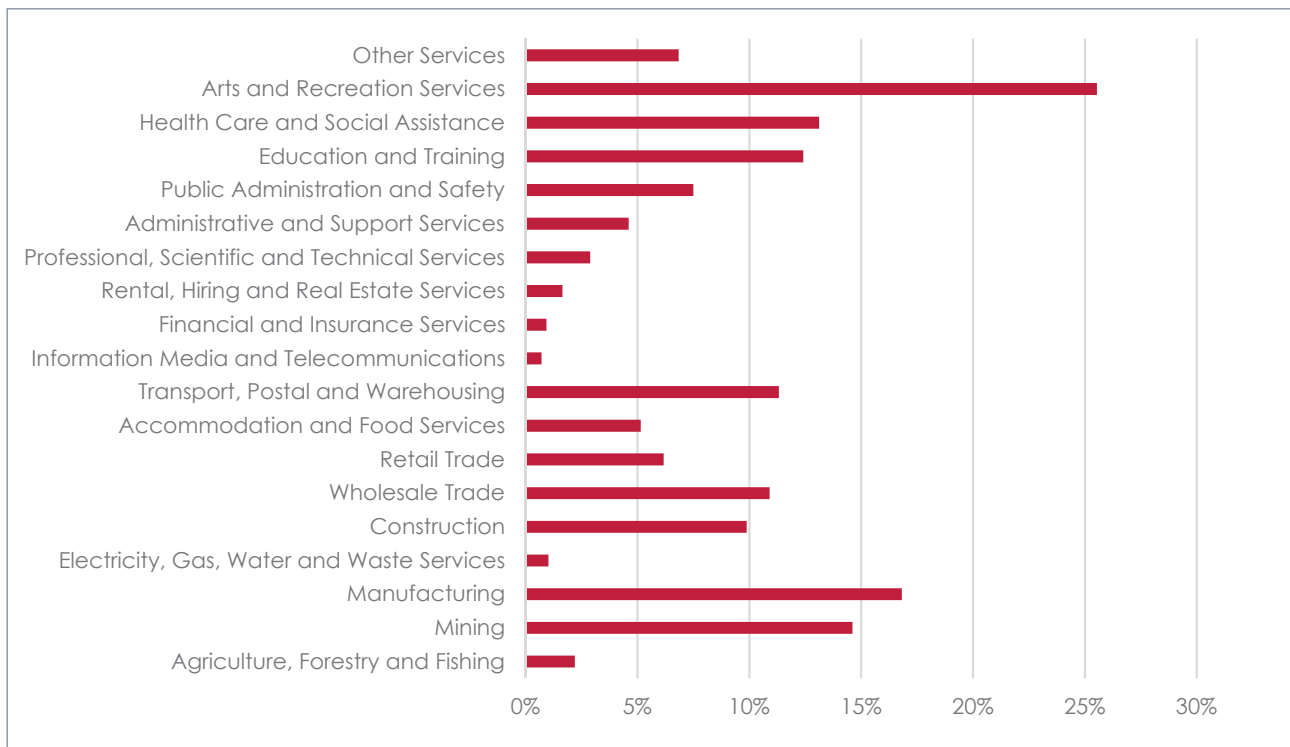
An additional characteristic of the workforce in Western Australia is the relatively high representation of Aboriginal and Torres Strait Islander Australians compared to other states. Combined, this group makes up 3% of the labour force in Western Australia, compared to 2.5% in New South Wales, 0.7% in Victoria, 3.6% in Queensland and 1.9% in South Australia (ABS, 2017). Despite this, in Western Australia just 47% of Aboriginal and Torres Strait Islander people participate in the labour force compared to 68% in the Australian Capital Territory, 57% in Tasmania, 56% in Victoria, 55% in Queensland and 54% in New South Wales (ABS, 2017).

The most common industries of employment for Aboriginal and Torres Strait Islanders in Western Australia in 2016 were arts and recreation services; manufacturing; mining; health care and social assistance; and education and training (Figure 10; ABS, 2017). Notably

few Indigenous Australians were employed in the professional services sector, and a much higher proportion of Indigenous workers were employed in arts and recreation services than non-Indigenous workers. This characteristic is unique to the Indigenous Australian workforce.

Important employment sectors for Indigenous workers, notably manufacturing and mining, have been identified as susceptible to automation in the coming decades (Davis, 2020a). Industries such as arts and recreation and education risk significant impacts from the COVID-19 associated recession, particularly if restrictions on business operations or on social gatherings are re-introduced in Western Australia, and if entry into the State from elsewhere in Australia and overseas remains restricted.

Figure 10: Industries of Employment – Aboriginal and Torres Strait Islander Labour Force



Source: ABS, 2017

In addition, ABS census data indicates that the highest levels of educational attainment among Indigenous workers are significantly lower than among the non-Indigenous workforce, with 14.5% of Indigenous workers holding a higher education qualification with just 3% of these being tertiary level qualifications. According to the 2019 ADII, Indigenous Australians living in urban and regional areas also suffer from relatively low level of digital inclusion, with gaps in access, affordability and ability to use digital technology (Thomas et al., 2019). Addressing this along with the endemic social and cultural barriers to employment will be critical in ensuring that Indigenous Australians are not further and disproportionately impacted by future of work changes such as automation and technological advancement, and that Indigenous workers are well positioned to transition into newly created roles within diverse industry sectors.



Conclusion

This bulletin has described the three trends that have substantially altered the composition of the workforce in Western Australia and Greater Perth in recent decades.

The first trend discussed was the large increase in female participation in the workforce over the past 30 years, and its association with social and legislative change, technological advancements and structural reform in the economy. This has increased the proportion of service sector employment in the State, although this has been somewhat muted by twenty-first century growth in the mining, resources and associated sectors.

It highlighted that while social, technological and structural change in the economy over the past 30 years has assisted in increasing labour force

participation among women, female participation remains lower than that of men. Factors that could hinder female labour force participation in the future are multiple and complex but include continued gender separation of labour, reduced progression of females into senior roles (vertical segregation) and lower average rates of remuneration for females compared to males (gender pay gap). The over-representation of women in industries such as retail sales and food and accommodation services, which are among the industries identified as most susceptible to automation and technological change and among those adversely impacted by the current COVID-19 associated recession, has also been identified as potentially hindering female participation in the short-to medium-term.

Increasing female participation in the workforce and reducing gender segregation by encouraging males and females to enter non-traditional industries could assist in diversifying skills and talents across industry sectors. In particular increasing female participation in STEM sectors has been identified as vital in enhancing employment opportunities for females and in building a depth of skills and talent in these industries in the future. This bulletin indicated that providing opportunities for women to reskill or upskill and transfer from sectors or jobs with declining employment opportunities into sectors experiencing employment growth will therefore be important in the future.

The research also explained that the feminisation of the workforce has also been associated with

substantial growth in the share of part-time relative to full-time employment in the State. It showed that while more women than men work part-time and part-time work remains more common in female dominated service industries including health and social assistance, retail sales and food and accommodation services, growth in part-time employment is evident across a range of industries including male dominated sectors such as manufacturing and construction. There has also been growth in other non-traditional forms of employment among males such as 'owner managers of incorporated and unincorporated enterprise without employees', often identified as contract or 'gig' employment.

The bulletin also provided evidence that growth in part-time employment is associated with periods of economic downturn. This was supported by current statistics, which show that rates of unemployment are lowest among males and females seeking part-time employment.

While it is noted that part-time and non-traditional forms of employment can deliver benefits to employees and employers, heightened part-time employment can also be associated with underemployment, underutilisation of the labour force and employment insecurity and this could emerge as a substantial issue, both in the immediate shadow of the current recession and as industries adapt to automation and technological change in coming decades.

Importantly, jobs in male dominated non-service sectors such as manufacturing, construction, transport and mining have been identified as being susceptible to future impacts of automation and

technology and this could lead to redundancies or a mismatch between the skills supplied within the labour force and the skills demanded by employers. Retraining and upskilling workers in these sectors to adapt to technological change has therefore been identified as imperative for the future, as has the development of an appropriately skilled and qualified emerging workforce.

The second trend is the ageing of Australia's labour force, evidenced by a rapidly increasing proportion of workers aged over 60 years. The ageing of the workforce has been identified as a risk for the State's future workforce, with the potential for a shortage of skilled labour as older workers transition to part-time work or leave the labour force for retirement. There is also a risk that an ageing workforce will reduce access to the skills needed for industries and companies to successfully adopt and adapt to new technologies. Ensuring older workers are adequately trained in the effective use of technological tools will therefore be an important component of retaining a skilled and productive workforce into the future.

The third trend is cultural diversification of the workforce in Western Australia and Greater Perth. The bulletin highlighted that in 2016 a higher proportion of the labour force in Greater Perth was born overseas than in any other major metropolis in Australia. If well managed and promoted, this could enhance Greater Perth's global reputation as culturally diverse and continued access to skilled migrants could assist employers in addressing skill and worker shortages generated by technological change and advancement, industry growth or the ageing of the existing workforce.

Finally, the bulletin identified Indigenous Australians as important contributors to the Western Australian workforce, although rates of labour force participation among Indigenous people remain well below those of the non-Indigenous population and those of other Australian States. The Indigenous workforce has also been identified as bearing a disproportionate risk of negative employment impacts as a result of technological advancement due to existing employment disadvantage, lower levels of educational attainment and reduced access to digital technology. Addressing these disadvantages will be critical in ensuring that Indigenous workers are well positioned to transition into newly created roles within diverse industry sectors.

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About FACTBase

FACTBase is a collaborative research project between the Committee for Perth and The University of Western Australia. It aims to benchmark the liveability of Perth and its global connectedness through an examination of Perth's economic, social, demographic and political character.

The FACTBase team of academics and researchers condense a plethora of existing information and databases on the major themes, map what is happening in Perth in pictures as well as words, and examine how Perth compares with, and connects to, other cities around the world.

The Committee for Perth is a member-funded organisation and we acknowledge our Gold Members:



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Davis, G. (2020). *Future of Work: The Shifting Demographics within Western Australia's Labour Force*, FACTBase Bulletin 72, The University of Western Australia and the Committee for Perth, Perth.

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