



CFMEU submission into the
Future of work and workers

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CFMEU

CFMEU National Office,
Level 6, 540 Elizabeth Street, Melbourne, VIC 3000
www.cfmeu.org.au

1. Introduction

On October 2017 the Senate established the Select Committee on the Future of Work and Workers to inquire and report on the impact of technological and other change on the future of work and workers in Australia. The Committee is to report on or before June 2018.

As part of the inquiry the Committee has invited submissions from organisations and individuals. The closing date for submissions is 30 January 2018.

The Construction, Forestry, Mining and Energy Union (CFMEU) is Australia's main trade union in construction, forestry and furnishing products, mining and energy production. We welcome the opportunity to submit comment to the Committee.

Australia is increasingly being characterised by insecure work, record low wages growth and increasing inequality. More and more working people are underemployed, in casual work, or on 'sham' independent contracts. While local workers are struggling to find enough work, there is systematic exploitation of temporary overseas workers and a lack of employment based training for our young people.

As workers and communities suffer, the profits of big business are skyrocketing. It is no accident, but rather the result of decades of failed policies aimed at benefiting business and hoping that the benefits will trickle down. They have not trickled down.

Technological change is creating uncertainty for working people. But technological change itself is not the problem. Whether the impact of innovation will be positive, or negative, for working people depends on political decisions, and the social and economic frameworks in which change takes place. As things currently stand, technological change will likely lead to more insecure work and inequality. But this is not inevitable. It is a choice.

To fix the problem, we need to fix the problems in our industrial and workplace systems. We need to restore power to working Australians.

2. The rise of an Australian working underclass: record low wages growth and insecure work.

Technological change coupled with social, economic and political systems that have focused on the profits of business ahead of working Australians has led to the proliferation of insecure work, record low wages and increased inequality.

Over the past decades, political consensus has been that what is good for big business will be good for workers. That if we introduce policies for business, the benefits will trickle-down to make everyone better off. The reality has been quite different. Average Australians are not better off.

Wage growth is at record lows, along with rapidly growing profits this has led to a record low share of Australia's income going to workers (labour) and record high levels of inequality.

Millions of people in Australia cannot find enough work. While the focus is primarily on unemployment – with over 700,000 (5.5%) of Australians out of work, what has become an even larger problem is underemployment. Over 9% of working people in Australia, over 1.1 million people, are in work but are unable to find enough hours. Underemployment has continued to grow since the 1970s. Since 1978, the proportion of people without enough hours to work has increased over three fold from 2.8% to over 9%. Together, over 14% of working people in Australia are unable to find enough work if they are able to find a job at all. It is particularly bad for our young people, around 1 in 3 young Australians are unable to find enough work.

Technology is a primary contributor to rising unemployment and underemployment, as tasks usually done by workers become automated, outsourced overseas or made obsolete. Technology, however, is neither inherently good nor bad, it is not the technology itself that leads to negative outcomes for working Australians, but is contributed to by the economic system and policy decisions around which technological change occurs.

Policies that have focused on increasing the 'flexibility' of labour, and gaps in regulation protecting workers, have led to an increase in non-standard and precarious forms of employment. Increased 'flexibility' has only benefited business, it has not meant increased 'flexibility' for working people.

More and more Australians are in insecure precarious work, taking on multiple freelance and contract jobs, in casual work, on 'sham' contracts, and undertaking 'gig' jobs.

1 in 4 employees in Australia are now on casual contracts, with no access to paid sick or annual leave, irregular superannuation contributions, and unsure whether they will have work from one week to the next. Casual workers are generally some of the lowest paid workers in the country, and face stress from the insecurity of their work.

Employers are increasingly using 'sham' contracts, hiding what should be employee-employer relationships as independent contracts in order to avoid paying workers their legal entitlements such as minimum wages, superannuation and workers compensation.

There is systematic exploitation of temporary overseas workers. This is not due to rogue unscrupulous employers. It is structural. A recent survey finds that around a third of international students and backpackers are being paid less than \$12 an hour, just over half the minimum wage for a casual worker. Almost half earned less than \$15 an hour.

Employers argue we need temporary overseas workers due to skills shortages. Yet surveys indicate that less than 1% of employers engaging skilled temporary workers addressed perceived skills

shortages by offering higher wages to local workers – which economists generally view as a necessary precondition for the existence of a skills shortage. At the same time, employers are avoiding investing in the training of our young workers. In the past 5 years, the number of apprentices and trainees has halved. In terms of apprentices in the trades and technicians category, we have lost 1 in five – those retiring or leaving their occupation are not being replaced.

The decline in apprentices is another of many symptoms of an economic system that is failing everyday Australians. Apprenticeships are in decline because we are putting the profits of business ahead of what is good for our young people, and the skills needs of Australia in the future.

Increasing deregulation and privatisation of our education systems has allowed for-profit private operators to offer low quality training to increase profits, robbing government funding, while providing very little if any benefit to students. Problems in the labour market including increased casualisation and sham contracting have made it difficult for those employers who want to train our future workforce to do so.

There has been a rise in the number of workers working in the ‘gig’ economy. Technological change has resulted in the development of sharing platforms and businesses that are based on a business model of exploitation. Many of these workers are placed on independent contracts, with no job security and without the minimum wages and protections that standard employment offers. Again, the exploitation of these workers is not inherently due to new technology, but a failure of regulatory systems to protect them.

Rather than increasing protections for these workers, as for example has occurred in the UK through the *Employment Rights Act 1996 (UK)*, the Federal Government is actively promoting these insecure forms of work. As education becomes less effective as a solution for dealing with technological change, and the number of university graduates in full-time employment falls, the Government’s solution is to spend \$1.4 million to get 80 former unemployed students insecure low-paying jobs in the ‘gig-economy’ with companies such as Uber and Deliveroo (\$17,500 per student).

Rather than addressing the rise of insecure work and low wage growth, the Government continues its ideologically driven attack on the very unions that stand up for the rights of everyday working Australians.

Without intervention, increased technology change will continue to erode job security, increase underemployment and push down wages for working people in Australia.

Technological change presents numerous benefits to the country, but as things are, without adequate control or examination of the social, economic and policy structures in which change occurs, it will likely only lead to further insecure work, underemployment, stagnating wages and inequality.

We have three options: 1) we can either fight to try and prevent technological change (much of which is likely inevitable) and miss out on the broader benefits it presents; 2) we can let change occur freely with no regard to equity and the impacts on broader society and workers (likely leading to further inequality and instability); or 3) we can take advantage of the great opportunities innovation offers to us, while guiding change to ensure the benefits are widely shared, rather than simply concentrated in the hands of a few.

The CFMEU supports the last of these options.

Case study: Insecure work in Australia's Construction Industry

Workers in insecure and non-standard forms of work make up a substantial and increasing proportion of Australia's workforce. These workers often have little job security, not knowing whether they will have work from one week to the next, and lower wages and working conditions than those in traditional forms of employment.

Almost one in four employees are hired on casual contracts, including in the Construction industry. In addition to high levels of casualisation, the Construction industry is one of the worst industries for sham contracting. The CFMEU estimates that around 26-46% of independent contractors in the construction industry are hired on sham contracts.¹

As part of a 2015 Submission to a Victorian Inquiry on insecure work and labour hire, workers spoke of the negative impact of insecure work (including casualisation and labour hire) on their lives.

"if I'm getting money at all [it's] week to week, last week I worked 5 days this week I haven't worked one!!! I am online all day searching for decent paying full time work the only calls I get are from agencies offering low paying casual work without guaranteed hours, the banks won't give me money. I can't even get a phone on a plan because I need full time work!!! ... It is not a privilege to have a job! I want to work, I want secure pay and conditions, why must I feel lucky if I can get that!!!!"

"If you even question health and safety, the builder you are on-site for will call you a trouble maker, phone your employer, and demand not to send you back to that job."

Ben M, a carpenter employed through a labour hire agency in Melbourne, says that he didn't feel he could discuss his pay and conditions without risking his job *"If you spoke up they move on to the next bloke."*

Patrick O, a casual rigger/dogman hired through a labour hire firm in the construction industry in Melbourne says that he can't pay his bills and buy food each week; that he can't pay his rent/mortgage when it's due; and does not feel confident about the future of his job and income.

"Casual work might suit SOME people, but 99% it doesn't... Mentally, the ramifications of casual work can be endlessly negative. Extremely high stress levels due to the unknown for you and your family, which in turn creates low self-esteem, depression, anxiety and feelings of not being good enough to provide for your family. As a casual, money is extremely tight anyway due to lack of hours of work and being unable to plan financially. [Xmas is] an incredibly stressful time for all of my family, at a time we should've been able to relax and enjoy. I never wish to experience that again.... No financial institution will loan money to casual employees, so to get a mortgage and your own home is IMPOSSIBLE... you worry everyday if you can pay rent, get a good food shop that's healthy and pay for your children's needs. I'm now on anti-depressants."

Source: CFMEU (2015), 'labour hire and insecure work', a submission to the Victorian inquiry into the labour hire industry and insecure work in Victoria.

¹ CFMEU (2011), Race to the Bottom: A report on sham contracting in Australia's Construction Industry.

3. Technological change and inequality

Rising inequality, insecure work and stalling wage growth are creating havoc in our economy. While workers and communities struggle, the profits of big business are increasing to record highs.

At the same time, technological change is creating uncertainty for Australian workers and their families. Automation and digitalisation present real threats, as well as opportunities, for industries and jobs.

On one hand, discussions are being had about what to do about rising job insecurity, declining wages and inequality. On the other, are conversations about what technological change means for workers and jobs. These conversations have been largely disconnected.

But they are directly related. It is estimated that over half of the current decline in labour's share of national income is directly due to technological change. The decreasing labour share is a primary driver of inequality. Current debate on technological change is largely limited to the jobs and occupations that may be under threat and those that may arise. What is talked about less, is the direct impact of technology on inequality and society as a whole.

The truth is, technological change is neither inherently good nor bad for working people. Technological change and the future of work is what we make it. The outcome depends less on the individual technological advances, than it does on political and social decision making.

3.1 Understanding two processes: The production function and factor payments

Innovation and technological advance has a direct impact on workers by changing tasks, occupations and industries. New developments can negatively impact workers, through automating or obsoleting tasks or occupations. It can also impact workers positively through the creation of new jobs. Technology directly influences the workplace through changing *how* things are produced and *what* things people want or need to be produced.

When a product or service is produced, the firm can generally make decisions about methods in the manufacturing process. The inputs used in production, are known as the *factors of production*. The primary factors of production in the basic model include labour (workers) and capital (land, equipment, machinery, buildings). Often, these inputs can be substituted for each other, e.g. a t-shirt may be able to be made by either a machine, or a worker, or a combination of workers and machinery. A business makes economic decisions about the combination of each input it will use (that is, the number of workers it will use, how many machines it will buy, and what type of machines it will use). A business whose objective is to maximise its profit will generally choose the least cost combination of workers and machinery in order to produce their product – this combination of capital and labour is known as the firm's *production function*.

Firms will also make decisions about what markets they are going to produce in, and what products they are going to produce. The decision to enter or remain in a market is also dependent on technological change as it changes what goods and services individuals wish to consume (for example, a couple of decades ago people chose to purchase music on CDs, now people are increasingly purchasing music electronically).

The impact of technology on what is produced, and how it is produced, is what the debate about the impact of technological change on workers focuses on. That is, questions such as what industries are going to become obsolete? What jobs are going to be displaced? What jobs will exist that may have not existed before? Etc.

While these questions are crucially important, alone, they do not paint the full picture of the impact of technological change on working people. The other questions we need to be asking is about how the wealth and income created as a result of technological change is being distributed. Who is benefiting from technological change? Are the economic and social systems in which technological change fits still fit for purpose? How can we ensure the benefits from technological change benefit all, rather than merely a few?

Goods and services are produced by firms. Firms use a combination of capital and labour in the production process. In return for their productive services, owners of capital and workers receive factor payments – capital receives rent, interest, profit etc. and workers receive wages and salaries.

How much workers are paid in wages, and how much capital receives, is determined by a range of factors such as relative demand for labour or capital, the regulatory environment, the relative bargaining power of workers, etc. The relative share of income received by workers and capital is also influenced by technological change.

Nationally, and globally, labours share of national income has been decreasing. In Australia, a recent report by The Australia Institute has demonstrated that the proportion of national economic output paid to workers has reached an “*all time low*”. It finds that for every additional dollar of income in Australia, less than 10c found its way into workers pockets.²

A falling labour share contributes directly to increased inequality. As capital is more concentrated than labour, in that a much smaller proportion of people benefit from company profits as compared to those who benefit from wages from their labour, a higher capital share results in higher inequality.

The International Monetary Fund estimates that globally around half the total decline in labour share can be traced to the impact of technological change.³ They argue the decline has been driven by a combination of information and telecommunication improvements and a high share of jobs being automated.⁴ In 2012, the OECD also estimated that new technology and the increased use of capital rather than labour contributes substantially to the fall in labour share. Specifically they found that increased capital intensity and total factor productivity accounted for as much as 80% of the within-industry decline of the labour share in OECD countries between 1990 and 2007.⁵

² The Australia Institute (2017), ‘Briefing note: labour share of Australian GDP hits all-time record low’, Centre for future work briefing note, accessible at:

http://www.futurework.org.au/record_low_labour_compensation_as_share_gdp

³ IMF [International Monetary Fund] (2017), ‘Drivers of the declining labor share of income’, *IMFBlog*, accessible at: <https://blogs.imf.org/2017/04/12/drivers-of-declining-labor-share-of-income/>

⁴ The IMF also finds that global integration contributes another 25% to the decline in labour share and that it is difficult to separate the impact of technology and global integration as improved technology has contributed to global integration.

⁵ OECD (2012), ‘Labour Losing to Capital: What explains the declining labour share’, *OECD Employment Outlook 2012*, Chapter 3, accessible at: http://www.oecd.org/els/emp/EMO%202012%20Eng_Chapter%203.pdf

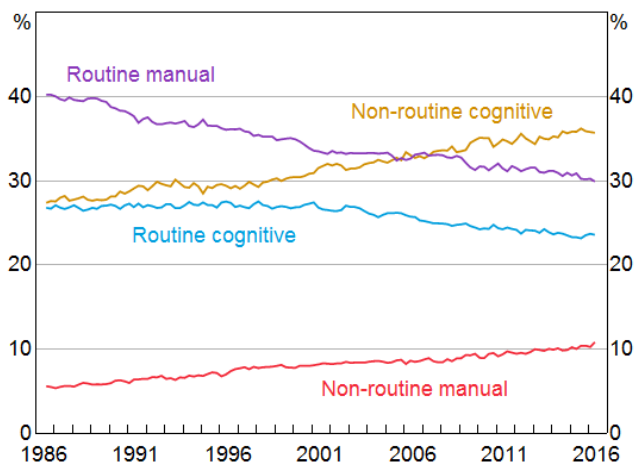
3.2 Technology and inequality: four areas for concern

Skill-biased technological change: the hollowing out of the middle class

Skill-biased technological change (SBTC) is those technologies that favour workers with particular skills sets or skills levels above others. It is those technologies which displace middle skilled workers, particularly those involved in more routine cognitive and logical tasks, such as some assembly line workers, while creating new or improved jobs for more highly skilled workers, such as IT and STEM (Science, Technology, Engineering, Maths) professionals.

Since the 1980s, technological change, has been biased towards making highly skilled labour more productive, while displacing middle-skilled labour. Non-routine manual tasks, usually undertaken by lower-skilled workers, have been harder to automate. This has contributed to a hollowing out of middle-skilled workers. The figure below demonstrates a decline in the share of the Australian workforce in routine job (for both manual and cognitive) and a rise in non-routine jobs.

Employment by skill type (% of total)⁶



This is consistent with the hollowing out of middle income households that is being observed across developed economies. It has led to inequality between high skills non-routine workers, and lower and middle-skill workers, as displaced workers are required to compete with lower skilled workers, placing downward pressure on wages.

The traditional approach to addressing income inequality as a result of SBTC has been to increase investment in reskilling and education, particularly in STEM subjects. Education is a crucial tool for improving productivity and for ensuring that everyone is able to have better career opportunities and to succeed. Planning ahead ensures that the skills we are producing today, match the skills we need in the future.

⁶ Heath, A. (2016), 'The changing nature of the Australian workforce, Speech to CEDA – Future skills: the education and training pipeline, accessible at: <http://www.rba.gov.au/speeches/2016/sp-so-2016-09-21.html>

Capital-biased technology: inequality between profit and wages

Where skill-biased technological change has been the dominant narrative of the relationship between technological change, jobs and inequality over the past few decades, there is now a shift from this phenomenon to another where all workers are being left behind.

Krugman argues that while skill-biased technological change which created inequality in wages between skilled and less skilled workers may have been the big problem twenty years ago, capital-biased technological change has grown to be more of an issue today. He defines this kind of technological change as “*the kind of change that could make society richer but workers poorer*”.⁷ What is now happening, is a bias towards capital and the rise of profits at the expense of worker in general – both skilled and less skilled workers.

Capital-biased technology is that substitute technology that displaces workers entirely and replaces them with automated alternatives. As this form of technology replaces workers with machines, unemployment and underemployment rises and work becomes more precarious. This can create an abundance of workers competing for fewer jobs, further pushing down wages.

The extent of technological change on job obsolescence and the resulting impact on unemployment and underemployment is unknown. Forecasts range from highly optimistic to severely pessimistic. In 2015, the Committee for Economic Development of Australia (CEDA) estimated that increased computerisation of tasks that directly substitute for labour could, with a high probability, replace as much as 40 per cent of jobs within a decade or two.⁸ A study by the US National Bureau of Economic Research estimated that, based on robot usage between 1990 and 2007, one more robot per thousand workers reduces the employment to population ratio by around 0.18-0.34 percentage points and wages by 0.25-0.5 percent.⁹ Other studies predict technology will have more of an impact on the types of tasks workers undertake and anticipate a much lower impact on unemployment overall.¹⁰

Historically, skill-biased technological change has been addressed by educating workers to move them into more highly skilled and productive jobs, leaving less workers to compete for fewer unskilled jobs. Avent (2016) argues that the skill-upgrading approach to more and better employment has run out of steam; recent technological shifts are resulting in an abundance of labour and fewer ways to move that labour into skilled or unskilled productive work. This is resulting in a large number of workers accepting low pay in order to find employment.¹¹

This can be demonstrated through the declining wage premium on university qualifications and the declining proportion of recent graduates finding full-time employment. A problem the Government is trying to fix by spending \$1.4 billion to get 80 unemployed former students into “gig” economy

⁷ Krugman, P. (2012), ‘Capital-biased technological progress: An example (wonkish)’, *The New York Times*, accessible at: <https://krugman.blogs.nytimes.com/2012/12/26/capital-biased-technological-progress-an-example-wonkish/>

⁸ CEDA (2015), ‘Australia’s Future Workforce?’, Research report, June 2015, accessible at: http://adminpanel.ceda.com.au/FOLDERS/Service/Files/Documents/26792~Futureworkforce_June2015.pdf

⁹ Acemoglu, D. and Restrepo, P., (2017), ‘Robots and jobs: Evidence from US labor markets’, NBER Working paper No. 23285, accessible at: <http://www.nber.org/papers/w23285>

¹⁰ AlphaBeta (2017), ‘The automation advantage: How Australia can seize a \$2 trillion opportunity from automation and create millions of safer, more meaningful and more valuable jobs’, report commissioned by Google, accessible at: <http://www.alphabeta.com/wp-content/uploads/2017/08/The-Automation-Advantage.pdf>

¹¹ Avent, R., (2016), *The wealth of humans*, Penguin books, UK.

jobs such as Uber, Deliveroo and Airtasker – some of the most precarious, lowest paid jobs in Australia.

All things equal, under the current economic framework, the owners of capital are more likely to benefit from capital-biased technology as workers are replaced by automated alternatives, and less jobs puts downward pressure on wages. This leads to further inequality as the benefits of technological change go increasingly to profit and rents for the owners of capital.

Winner takes all: the superstar effect and the rise of the ridiculously rich

Technological change has the potential to increase inequality between workers based on skill, as well as the distribution of income between profits and workers. It also has the potential to increase inequality between a few individuals and firms and everybody else.

One of the interesting trends in inequality isn't just the gap between the rich and everyone else, but the growing divide between the rich and the ridiculously rich. In Australia, just two people – Gina Rinehart and Harry Triguboff – own more than Australia's poorest 20%.¹²

A study into income inequality in Australia in 2013 found that the share of Australia's top 1% has risen since the late 1970s with the rise in inequality even more pronounced at the top end of the distribution. They find that between 1984 and 2012, the top 0.001's share of wealth tripled.¹³

Part of this growth in inequality between the rich and the ridiculously rich can be explained by changes in technology. Innovation has allowed individuals and companies to access markets they may have never been able to in the past. This has allowed individual companies to capture entire markets, particularly for new technological products where the cost of selling to each additional person is low. These winner-take-all markets are resulting in a small number of 'superstar' businesses and individuals making ridiculously large amounts of money, while other competitors make very little.

Winner-take-all markets have become increasingly common as more goods and services are digitalised and as telecommunications and transportation (e.g. the internet) improvements increase networks and allow businesses access to more markets around the world.

Technological products also often have strong network effects. A network effect is an economic term that means there is a positive benefit from using a good or service that is the same as other people. For example, if all of your friends are on Facebook, it makes sense for you to also use Facebook rather than some other program. This further strengthens the winner-takes-all environment.

Of the world's richest people, 3 out of the top 5 wealthiest individuals generated wealth on the back of new technology: Jeff Bezos founder of Amazon.com (\$US 116.6 billion), Bill Gates founder of Microsoft (net worth \$US92.9 billion) and Mark Zuckerberg founder of Facebook (\$US76.6 billion).

The problem with the economics of superstars is that, rather than distributing benefits across market participants, the income from an entire market can go to a single person or company dominating that market. As they become more powerful, these companies can lobby for regulation

¹² The Guardian (2017), 'Gina Rinehart and Harry Triguboff own more than Australia's poorest 20%, research finds', *The Guardian*, 16 Jan 2017, accessible at: <https://www.theguardian.com/australia-news/2017/jan/16/gina-rinehart-and-harry-triguboff-own-more-than-australias-poorest-20-research-finds>

¹³ Katic, P. and Leigh, A., (2013), 'Top Wealth Shares in Australia 1915-2012', *Review of Income and Wealth*, 62(2), pp. 209-222

that further protects their dominant position making it increasingly difficult for competitors to enter the market.

The rise of superstars not only increases inequality at the highest income levels through domination of a market, it also further increases inequality for regular workers by contributing to the declining labour share. It is not necessarily that they are paying lower wages, often large companies pay more, but that wages make up a much smaller proportion of revenue at these superstar companies.

Specifically, analysing US data, Autor et al find that industries that have had rising market concentration (i.e. have superstar firms with higher market share) have also had the sharpest falls in labour share. They also find that the falling labour share is largely due to a reallocation of labour away from smaller firms towards these superstar firms. That is, the falling labour share is not necessarily due to companies substituting machines for workers, but rather the economy being increasingly dominated by a few large superstar companies that use more machines and away from smaller companies that use more labour.¹⁴

From stuff to fluff: the growing importance of social capital in production

Global production is becoming 'dematerialised'. We are focusing less on the importance of the plastic and metal production of physical 'stuff' than services and the ideas and social capital that is inherent in what we produce.¹⁵ If we consider the iPhone, while components are manufactured by suppliers across the world, and two companies in Taiwan assemble the phone, the largest share of the value goes to Apple. This value, is not due to the manufacture of the phone, but due to the design and engineering; the '*knowledge embodied in the product*'. The value of *Google Home* is not in the plastic physical product itself, but in the innovation and services it provides.

Some of the world's largest corporations (including Apple, Google and Amazon) are known for the creation of an organisational culture that facilitates innovation, experimentation and the development of new ideas to make profit. These companies are deriving value, and profit, from the development of shared social capital.

The value generated from social capital can be attributed to all the people working within an organisation. It only exists, due to a group of similarly minded people within the organisation sharing a common culture, knowledge and understanding.

Despite the fact that the social capital exists because of workers, as this specific knowledge has no value outside of the organisation; any individual worker is unable to use this knowledge to bargain for higher wages with another firm. Consequently much of the benefit of social capital is flowing to those with more bargaining power, generally the owners of capital rather than workers. This leads to further inequality, as the benefits of social capital flow to capital and top managers.

To address rising inequality from technological change in all its forms, we need to address the systems in which technological change takes place. Specifically, we need to address how wealth is distributed and the balance of power between workers and business.

¹⁴ Autor, A., Dorn, D., Katz, L., Patterson, C., and Van Reenan, J., (2017), 'Concentrating on the fall of the labour share', *American Economic Review*, 107(5), pp. 180-185.

¹⁵ Avenet, R., (2016), *The wealth of humans*, Penguin books, UK.

4. Technological change in CFMEU industries

In the Mining and Energy industries, emerging technologies have the potential to entirely transform how energy is produced, distributed and used. In the early 2000s, many forecasted that autonomous driverless trucks and logistic systems would soon replace workers in the mining industry. While this is now a reality at some sites, others have been less successful with businesses having a hard time achieving the safety and productivity improvements required. Activities and management have increasingly been centralised in off-site locations. Rio Tinto runs pits in the Pilbara with driverless trucks being controlled from an operations centre over 1,500 kilometres away in Perth.

Automation and robotics are being applied in construction with new technologies such as laser scanning, drones, and sensors having the potential to radically change the industry. In 2016, Dubai opened the world's first 3D-printed office. New materials are being created, like graphene and aerogel, which have the potential to completely change how we build things. But there are limitations with these technologies; the need for controlled environments, sufficient data availability and logic-based tasks mean often there are problems when these technologies are applied in inexact and dynamic environments.

In Pulp and Paper industries, the rise of digital technology has led to a decline in print media, but increased consumption is increasing demand for new paper packaging products. As businesses invest more in new machines and technologies, the workforce is decreasing while output of product increases.

For Textiles, Clothing and Footwear, while historically many jobs have been automated and outsourced to developing countries where labour costs are cheaper, new technological development such as robotic sewing machines that eliminate manual labour may see automatic work 'reshored' back to developed economies, but with fewer jobs created. Other new technologies such as 3D printing, body scanning technology, geofabrics, computer-aided and easily customised designs on a mass scale, wearable technology and nanotechnology are creating new industries as well as disrupting old ones. These industries will be less reliant on mass cheap labour.

Example 1: Automation and remote operations in Australia's mining industry

The mining industry is perhaps at the forefront of industries seeking to reduce employment on their sites through automation and associated remote operations (the control or supervision of on-site equipment from locations off-site). The industry has been working at this a long time – there were experiments with automated trucks in the Pilbara iron ore industry in the late 1990s, and Rio Tinto has been talking about Miners of the Future since 2008.

It appears that it has taken a great deal longer, and a great deal more money, to achieve progress on automation and remote operations than expected. Rio Tinto has been seeking to automate its large private rail network in the Pilbara since 2008, and it is expected that unmanned trains with full loads will commence in the near future, with the transition to automated operations complete by the end of 2018.¹⁶ The project is running many years late, and has cost over \$718 million.¹⁷

¹⁶ The West Australian, 19 July 2017, page 30

¹⁷ The Australian, 14 May 2017, page 26

There is also a shift underway at Rio Tinto Pilbara iron ore mines with the deployment of new driverless trucks, the conversion of existing trucks, and drilling rigs.

Other companies in iron ore – BHP, FMG and Gina Reinhardt’s Roy Hill – are less advanced but doing the same thing.

Rio Tinto has a large remote operations centre near Perth airport. All of the automated equipment requires supervision e.g. one person per five or six driverless trucks. It appears that the early days of automation and remote operations have required more human supervision, but this is likely to decline as systems are refined.

BHP has been implementing a remote operations centre in Brisbane for its east coast coal mines over the last 1-2 years.

The implications for mining and regional Australia: Occupational health and safety

It is frequently trumpeted by mining companies that automation and remote operations will make mining safer by moving workers out of harm’s way. It is undoubtedly the case that the mechanisation of mining has reduced injury, illness and fatality rates relative to hand mining and the same logic will apply to this new technology.

However, it has clearly taken the mining industry a great deal longer to achieve the level of safe operations that it needs from automated equipment than it expected; the pace of automation has been slower than predicted, and there seems to be higher levels of staffing being retained in order to “bed down” automated systems.

There are challenges for OHS law and regulation arising from automation and remote ops. To date the mining companies have chosen to locate their remote ops centres in the same State as the mines and equipment they are supervising. The remote ops centre could have just as easily been located in India or The Philippines - with lower wage costs and the loss of more jobs from Australia.

OHS jurisdiction appears to be a difficult issue – if a worker is killed or injured on a Pilbara mine site by automated equipment and the remote ops control systems and / or supervisor is in another State or country, how is State OHS law enforced?

In the same way that driverless vehicles on public roads is proving a thorny issue for legal liability for accidents, the issue of OHS liability in respect of automation in the workplace may prove difficult in other industries besides mining.

The implications for mining and regional Australia: Employment levels

To date the employment Armageddon in mining has not occurred. Mining has significant employment turnover (often due to the harsh rosters and working conditions for which higher wages are not enough compensation in the longer term) so forced redundancies due to automation are not readily found. In the pits in which Rio Tinto is currently converting trucks to driverless, the company not expecting to require or offer redundancies. Redeployment is occurring.

But as automation becomes routinised, clearly mining employment levels will fall. There will be some new jobs created, maintenance and one-off work will still require humans, and the higher productivity of the production task will increase the ratio of white collar / professional work relative to production jobs. (It is already the case that some 25-30% of all jobs on mine sites are not in production and maintenance.)

The broader implications of this include:

- **Less, and less well-paid, employment in regional Australia.** Mining is an industry that is predominantly regional and pays above average wages; agricultural industries tend to pay poorly. The loss of better-paid mining jobs in regional Australia will continue its “hollowing out”. This has implications for the provision of services – e.g. health, education, roads and airports – for the remaining population.
- **Greater inequality as well-paid blue-collar jobs decline.** The loss of blue-collar jobs in mining will also continue the “hollowing out” of the middle class as the proportion of blue-collar jobs that are well-paid declines, leading to greater inequality between managerial and professional income earners and those with fewer skills who are now more likely to be engaged casually and in less-secure work.
- **Australia’s biggest export industry will employ fewer people.** Mining accounts for around half of Australia’s export revenues¹⁸ and 11% of GDP¹⁹, but less than 2% of employment.²⁰ As this percentage falls further, the concerns arise about how this large export industry – that is overwhelmingly foreign-owned - provides benefits to the country. Direct employment is one, taxes paid are another, as is local spend on suppliers. Automation will cause the employment to fall; reduced employment will tend to reduce expenditure with local suppliers (both by the company and by workers), and elsewhere there have been many questions already raised about the taxes paid by resources companies.

Ultimately this raises questions about the fair distribution of benefits from the industry – if it is not direct employment it needs to be other means. The loss of employment will tend to reduce the social legitimacy of the industry, create more opportunities for opposition to the industry, and therefore reduce its prospects. Industries under threat almost routinely trumpet their importance to jobs; mines that are robot farms will enjoy little community support.

- **Greater vulnerability to failure.** The greater use of information technology does not automatically improve resilience; it can be the reverse. Increasingly sophisticated and interconnected systems become more vulnerable, one breakdown can have a cascading effect across many operations. This problem is accentuated by the tendency for the benefits of automation to be realized in larger projects, and for those larger projects to dominate global supply. (Rio Tinto and BHP’s iron ore mines in the Pilbara already supply more than half the world’s internationally-traded iron ore.) It is not difficult to see that major collections of mines could be brought to a standstill by software, power and network failures, possibly for days at a time. This will, alongside extreme weather events and similar, introduce a new volatility into global supply lines for commodities. Where particular companies have higher IT failure rates than others, it will become a reason for customers to change suppliers, threatening not only income but export revenue and taxes paid.

¹⁸ <https://industry.gov.au/resource/mining/australianmineralcommodities/Pages/default.aspx>

¹⁹ Reserve Bank of Australia, (2013), *Industry Dimensions of the Resource Boom: an Input-Output Analysis*, Sydney

²⁰ ABS Cat. No. 6291, Labour Force - Quarterly

Example 2: The Future of Australia's Construction Industry

Automation and robotics is creating the potential for fast and massive change in Australia's construction industry. New technologies, such as 3D printing and drones, and new materials, such as graphene and aerogel, have the potential to completely change what we know about how we build. These technologies will have substantial implications for workers in the construction industry.

In 2016 the CSIRO released a report into the future of Queensland's Construction Industry and the impact on construction workers.²¹ The report discussed critical trends and alternative scenarios for the future of Queensland's construction workforce.

The report found that technological change will mean the jobs of the future are not the jobs of today. The report outlined four scenarios ranging from little change in the industry to large change. At the extreme end of their scenarios, artificial intelligence and robotics has the potential to substantially change the construction industry by putting intelligent machines at the core of construction work. Historical trades and jobs are replaced by workforces of robot technicians and knowledge professionals.

Regardless of which scenario ends up being most likely, the authors stated that the construction industry will face a steep change in the next 20 years. New jobs and competencies will emerge and others will disappear. Digital literacy, tech savviness, innovation management, entrepreneurship and cross-cultural awareness and communication will become increasingly important. The jobs they predict include technicians who oversee robotic systems; people who manage online platforms; a movement from architects to industrial designers in the form of construction 'artists'; trainers in virtual reality as trainers and apprentices could meet virtually; drone operators; and robot resource managers (as opposed to human resource managers). Other traditional roles may become obsolete.

The impact of technological change in the construction industry on education and training

The precise nature of the jobs that will emerge in the next 20 years is difficult to predict but what is known is that the skills required will be largely based on operating new technology and computer programs, and using new materials and production methods. This will have a massive impact on the way in which the industry has traditionally trained workers, i.e. through apprenticeships and traineeships and more generally through the gradual learning of skills on the job.²²

Apprenticeships and traineeships will still be important but what apprentices will be taught will change. There will be a greater focus on using technology to perform tasks. New materials and production equipment will emerge. Apprentices will still need to know the theory of building techniques and their limitations, but this will likely be more focused on ensuring that the computers and technology they are using are working properly.

The changes in apprenticeships will require significant changes to the curriculum and training resources that are used. TAFE colleges will need to provide access to the new technology, materials, and equipment, including augmented technology. We will also need the people with the new skills to train the apprentices.

²¹ Quezada G, Bratanova A, Boughen N, and Hajkowicz S. 2016. *Farsight for construction: Exploratory scenarios for Queensland's construction industry to 2036*. CSIRO, Australia.

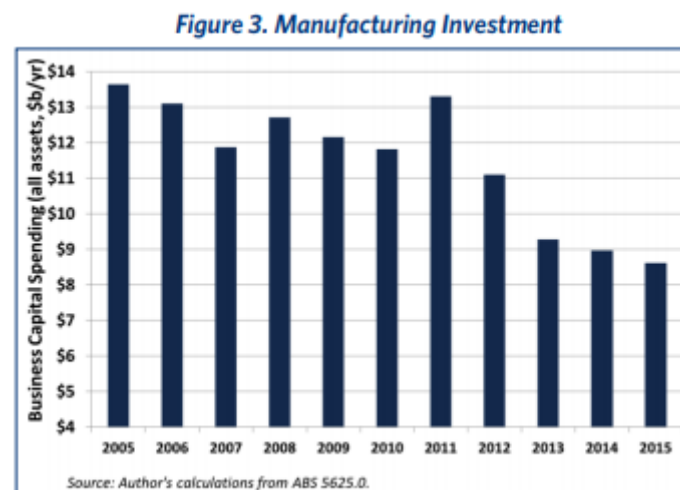
²² It is estimated that nearly 50% of people working as tradespeople in construction have no formal qualifications.

Unfortunately Australia's VET training system has with a pre-occupation with privatised funding models (i.e. a market based system) that is negatively impacting the quality of education, and focusing on profits rather than the best interests of students and the nation. The reality is 20 years is not that far away, the current tinkering with competency standards and qualifications funded by the Australian Industry Skills Committee will have an impact on apprentices starting in 2019 and finishing at the end of 2021/22. The question is, with the increasing advancement of technology, will these apprentices have the skills required in 2021/22 or should more dramatic changes be made now?²³ Unless these issues are addressed now there will be growing inequality particularly amongst young people.

Example 3: A manufacturing industry that is being left behind.

A distinguishing feature of many of the firms that employ workers in the manufacturing industries is the firms' dependence on successfully competing in markets for the goods and services they produce. Ultimately supply for products will come from the capital and labour which can produce what is demanded most efficiently.

Innovation, automation and technological advancement has changed the nature of manufacturing work since manufacturing has existed. Whereas automation, technology, and other forms of innovation may be seen as a forthcoming threat to jobs in other sectors, manufacturing has already faced a lot of the brunt of past technological advancements. Manufacturing is now relying on new technology to increase efficiency and productivity to make Australia internationally competitive in order to save and create manufacturing jobs. To be competitive, and to continue to be competitive, firms that employ our members need to invest, reinvest and continue to attract investment in technological intensive capital.



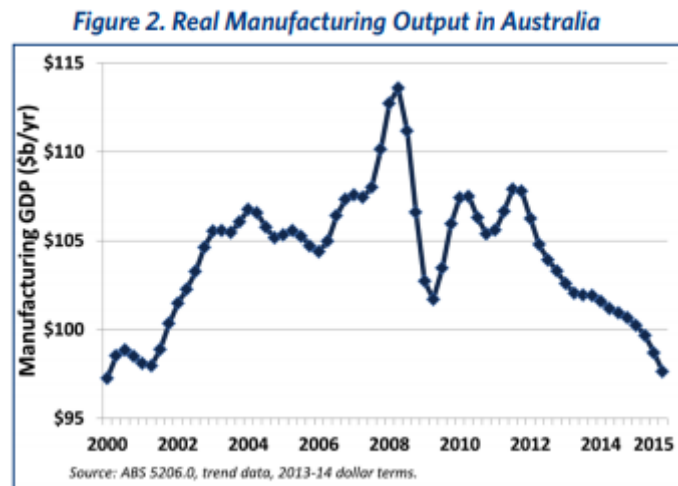
Source: Jim Stanford, "Manufacturing (Still) Matters", Centre for Future Work, June 2016 BRIEFING PAPER.

Australia is facing a crisis in manufacturing jobs. Manufacturing jobs dipped below 1 million in August 2009 following the Global financial Crisis (GFC). Since 2009, jobs in the industry have continued their decline. Quarterly labour figures show that just 877,300 jobs remain in the

²³ Much fanfare is being made of the development of the robotic bricklaying machines now being produced but will they be made obsolete by 3D printing?

industry.²⁴ Australia now has the the lowest proportion of manufacturing jobs of 30 OECD countries.²⁵

Australia's experience of has not been typical, it is worth noting that roughly one-third of the countries in the OECD expanded manufacturing employment between 2009 and 2014 (including Germany, the United States, and Korea) a great contrast to Australia's performance.²⁶ Meanwhile the ceasing of auto-assembly in Australia has decimated the market for one of the most high-skilled, high tech sectors of the industry which is the auto component-supply chain. More pain is likely to come.



Jim Stanford, "Manufacturing (Still) Matters", Centre for Future Work, June 2016 BRIEFING PAPER.

Despite this, there can be a future for Australian manufacturing. But what does that future look like and how can Australia make use of it?

The World Economic Forum finds that the expected global decline in manufacturing and production roles will be driven by labour-substituting technologies (such as additive manufacturing and 3D printing) as much as it will be more resource-efficient sustainable produce use, lower demand growth and global supply chain threats. It also suggests that robotics may also lead to labour-complementing productivity rather than simply replacing jobs. New technology will also likely lead to growth in areas such as architecture and engineering and increase the need for skilled technicians to create and manage automated production systems.²⁷

For Australia to benefit from technological change in the manufacturing sector, government leadership is essential. A proper industry policy must be designed to attract investment into, not just the technological and innovation systems needed to reverse the decline of manufacturing, but skills, training and education; high performance workplaces; collaborative hubs and industry precincts; management training; ethical supply chains; the use of procurement as leverage; and critical infrastructure (such as road and rail and logistics and high speed internet). This and other remedies featured in the industry plan "Smarter Manufacturing for a Smarter Australia" released by industry under the auspices of Government in August 2012. The Manufacturing Leaders Group was

²⁴ 6291.0.55.003 - Labour Force, Australia, Detailed, Quarterly, Nov 2017

²⁵ Jim Stanford, "Manufacturing (Still) Matters", Centre for Future Work, June 2016 BRIEFING PAPER.

²⁶ Jim Stanford, "Manufacturing (Still) Matters", Centre for Future Work, June 2016 BRIEFING PAPER.

²⁷ World Economic forum, the Future of Jobs, Employment trends: Impact of Disruptive Change on Employment available online @ <http://reports.weforum.org/future-of-jobs-2016/employment-trends/>

established to implement the plan. Since then Australia has had no fewer than six industry Ministers and, remarkably, at the time of writing it is unclear where responsibility for industry sits within the current cabinet.

Australia's approach to international trade has not been aggressive enough in securing markets both in Australia and abroad for current and future Australian manufacturers. Negotiations have failed to secure a level playing field in Australia's domestic markets. We have failed to utilise legitimate remedies to unfair competition (such as through anti-dumping, safeguards and countervailing measures, and safety standard conformity assurance on imports) and have failed to encourage local suppliers through industry participation plans and government procurement. This puts the Australian manufacturing industry at a direct disadvantage to its international trading partners who make the best of these opportunities as well as tariffs, quotas and unfair non-tariff barriers and behind the boarder measures.

The proposed Manufacturing Finance Corporation announced by the Australian Labor party in 2017 is a very positive initiative and will help overcome some barriers to investment in manufacturing (although adequate seed funding is essential). Other barriers to investment that need to be addressed include the lack of an industry plan for manufacturing and its sectors, and a cogent industry policy in general. In addition, lack of certainty of access in markets, both domestic and international due to Government's haphazard approach to international trade remains a significant barrier to attracting investment.

5. The adequacy of Australia's laws, including industrial relations laws and regulations, policies and institutions.

Australia's workplace regulations and industrial relations laws are broken. Over the past decades, policies have been focused on deregulating the labour market and increasing labour market 'flexibility'.

These policies, however, have emphasised a particular type of deregulation – the removal of regulation protecting workers. This has occurred in two ways 1) through the direct elimination or weakening of regulations that protect workers and 2) through the expansion of gaps within regulations which allow employers to exploit working people in Australia.

Campbell and Tham (2013) argue that the labour market deregulation process has been aimed at reducing regulation in areas of minimum labour standards and trade union rights, those regulations that *'protect workers, both individually and collectively,'*²⁸

At the same time, regulation has actually increased in some areas – particularly in relation that controls and subordinates workers – including stricter regulation surrounding the content of collective agreements, procedures for bargaining, and the regulation of trade unions.

Australia's trade unions are being attacked and this is negatively impacting workers. The declining labour share of income is directly related to the decline in trade union density as a result of ideological legislation against the very unions that represent workers.

This has resulted in an imbalance of power between workers and employers. This imbalance is resulting in the rise of insecure work, record low wages, and rising inequality.

We need to restore power to working people in Australia. It is clear that policies aimed at benefiting business at the expense of workers are not working – the benefits are not trickling down.

Australians industrial relations system and workplace regulation needs to be strengthened rather than dismantled. Laws that protect workers' pay and conditions, and prevent exploitation, need to be enforced rather than weakened.

Trade unions need to be supported to protect workers, not attacked.

We need an adequate safety net of relevant and effective rights that is applicable to all working people, regardless of the type of contract they work under. Independent contractors, casual workers, and labour hire workers all deserve the same fundamental protections as workers in traditional positions including decent wages and conditions, the right to collectively bargain and take industrial action, worker's compensation, leave entitlements, superannuation and protections around scheduling, stability and payment of work, and the right to safe work and safe workplaces.

We need to strengthen the framework for collective bargaining to give power back to working people and to ensure they can negotiate wages and conditions effectively. Our industrial system should provide all working people access to affordable and effective compliance, dispute resolution and enforcement rights - including through their unions – right across supply chain, franchise and contract networks.

²⁸ Campbell, I., and Tham, J., (2013), 'Labour market deregulation and temporary migrant labour schemes: an analysis of the 457 visa program', *Australian Journal of Labour Law*, 25(3).

The dismantling of worker rights and entitlements needs to stop. Gaps within regulations and the ability for employers to exploit these gaps (for example the lack of protection for workers in non-standard or new forms of work) need to be filled. Penalties for employers who breach workplace laws need to be more strongly enforced. We urgently need measures to ensure our laws and regulations support good wages and working conditions in all sectors.

Organisations such as the Australian Building and Construction Commission, need to be scrapped. The Government's anti-worker legislation including the ABCC legislation, and Registered Organisations legislation needs to be repealed. Along with other proposed regulation such as the Ensuring Integrity Bill and the Proper Use of Workers Benefits bill, that are simply ideological regulation aimed at attacking unions and interfering with unions' democratic processes.

5.1 Shortcomings in the Industrial Relations Framework: Contracting out and casualisation

Employers escaping their obligations through contracting out and casualisation

It is well-known that Australia has one of the highest proportions of casual workers in the developed world, and that beyond them are a further large proportion of workers who are self-employed (often on sham contracts) and others who are not entitled to paid leave – roughly 40% of the workforce in total.

What is less well-understood is that casualisation of the workforce - wherein it is assumed that casual workers are paid a loading (typically 25%) to compensate them for the lack of paid leave, notice of termination, redundancy and other benefits frequently results in the casual workers being paid *less* than the permanent workers that do the same job.

A further aspect, and one which often goes hand-in-hand, is the “contracting out” of a large proportion of work by a business to contracting firms. It is these firms that then rely heavily on casual labour and/or sham contracting. Using these legal devices, the principal business is able to reduce its responsibility as an employer and reduce costs at the same time. The losers are the workers who have less security in their employment, are denied paid leave, and in aggregate are on wages that are lower than fellow workers and lower than has historically been the case.

The work is still being done by the worker for the principal business – what has happened is the abuse of the legal form of employment in order to obfuscate or eliminate the employment relationship and therefore the responsibilities that the principal business would have as an employer.

Any industrial relations framework will have abuses at the margin; it is a function of the framework and its associated enforcement mechanisms to find and crackdown on those abuses. But in the case of the Australian industrial relations framework it is fundamentally failing to protect an increasing proportion of the workforce from the artificial manipulation of the legal form of the employment relationship in order to cut incomes and job security. This amounts to systemic failure.

An example of contracting and casualisation in the mining industry

Contracting out has been a substantial part of the industry since the 1990s, and most mine owners/operators would typically have 30% of their on-site workforce employed via contractors.²⁹ It is not disputed that there are specialist tasks, like periodic major maintenance, or the construction of new facilities, that justify the use of contractors and an associated workforce that is only temporarily at the site. But what we now see in mining is entire on-going mining functions out-sourced to contractors.

Australia's most well-known mining company, BHP Ltd/Plc, admits to around 55% of its Australian workforce of 35,269 being employed by contractors (and a similar proportion of its global workforce of over 60,000).³⁰ BHP has been seeking to reduce its labour costs through the aggressive use of contractors that employ workers on much lower wages and conditions than the direct employees of BHP.

"On August 20 [2015], BHP, which manages its half-owned BMA metallurgical coal joint venture, confirmed that 306 jobs would be lost at Blackwater because two new key functions would be transferred to Downer EDI... About 1500 people work at Blackwater now. But the introduction of Downer EDI to operate plant and equipment maintenance, run drill and blast operations and remove the topsoil that covers the coal seams means that 210 BMA employees will be asked to change jobs and another 96 contract workers will go... the basic hourly rate for a level three Blackwater operator is 25.7 per cent lower (\$29.69 an hour [for a Downer EDI employee] versus \$39.99 an hour [for a BHP employee]) and the Downer EDI agreement allows for overtime to be paid at 150 per cent rather than the 200 per cent that is standard in the existing BMA agreement."³¹

Concurrent with the greater use of contracting out to cut wages is the casualisation of the workforce. The primary industrial Award in the coal industry, the Black Coal Mining Industry Award 2010, does not provide for casual employment of production and maintenance workers – only full-time and part-time. Nevertheless a number of significant contractors in the industry have been employing coal mine workers on a casual basis through the use of enterprise agreements reached without union involvement that, until very recently, have frequently been approved by the Fair Work Commission.

²⁹ ABS data does not readily identify contractor employment levels; while there is data on the proportion that does not have paid leave (including casuals and the self-employed) this does not equal contractor employment. The Minerals Council of Australia published data on direct and indirect employment in its industry financial surveys up to 2007 (when it appears to have ceased publication as profits ratcheted up with the Resources Boom). The final publication showed 28% contractor employment while the 1999 survey showed just under 15% contractor employment.

³⁰ BHP Sustainability Report 2016-17, page 40.

³¹ Stevens, M (2015) 'BHP Coal deal built on union sign off', *Australian Financial Review*, 24 Sep 2015, accessible at: <http://www.afr.com/business/mining/coal/bhp-coal-deal-built-on-union-signoff-20150924-gju9w0>. The CFMEU is a reluctant party to the Downer EDI agreement only so that the union can represent members employed under it

The CFMEU recently won a major case in the Federal Court against One Key Workforce Pty Ltd.³² That case overturned an enterprise agreement voted on by just three workers in August 2015. An agreement that One Key had then spread to a workforce of some 1,118 workers in the black coal industry by 2017. One Key is a supplier of casual labour to mining industry majors BHP and Glencore, among others.

The agreement purported to cover all employees of One Key under 11 industry Awards across a broad range of industries from building and construction through to clerks and including the black coal industry. It purported to pass the required BOOT - Better Off Overall Test for enterprise agreements - with respect to industry Awards by paying workers just 0.1% more than the Award rate. The agreement also enabled One Key to employ all workers as casual and, where necessary, paid them just 1% extra to forego any rights to conversion to permanent employment where that existed.

Because industry Awards are now little more than safety net minimums, enterprise agreements with unions pay substantially above Award rates. The enterprise agreement reached without unions had the additional benefit for the company – relative to employing people on common law contracts – of preventing any industrial action for a better deal for the life of the agreement - four years.

Given that the coal industry employs around 46,000 people, the 1,118 employed by One Key made it one of the largest employers in the industry. Employing people on a casual basis in an industry where the relevant Award does not provide for casual employment, and on a rate of pay vastly below the prevailing rates paid to permanent employees. Wage cutting and the removal of security of employment through casualisation is the core business model of One Key and it is therefore no surprise that the company has threatened insolvency because it may owe millions in annual leave and sick pay to workers now deemed permanent rather than casual.³³

The One Key example is just one among many hundreds (at least) and including the infamous 2016 Carlton and United Breweries dispute - where contractor firms have implemented an enterprise agreement using just a few casual employees to endorse it, and then sought to spread it to a much larger workforce – provided to another large firm - providing wages and conditions substantially lower than that other firm currently pays its direct workforce. The fundamental issue in this case is that the legal form of the employment relationship – something that is easily manipulated by unscrupulous employers seeking to cut costs – is being given precedence over the substance of the relationship.

In the case of coal mines, many thousands of workers are being employed on a casual basis and on lower rates of pay to provide exactly the same functions as those employed directly by the mine operator. These workers are usually on 12 hour shifts with a roster that shows their hours many months in advance. It is illegal to discriminate on the basis of gender and race (among other grounds) in paying wages. But our industrial relations system allows workers working side-by-side on the same site to be paid vastly different wages, not on the basis of their skills or any other rationale other than simply the legal form of their employment.

³² Construction, Forestry, Mining and Energy Union v One Key Workforce Pty Ltd, 8 November 2017, [2017] FCA 1266

³³ Australian Financial Review (2018), 4 January 2018, pages 1 and 3

There is belated recognition of sham contracting but it does not go far enough. Arguably the foundations of the industrial relations framework need to shift from being focused on “employees” to focusing on “workers”. Businesses should take responsibility for those who work on their sites and/or at their direction rather than being able to evade the responsibility through contracting out to third parties. Further, casual work needs to be tightly defined by industrial relations law as that which is intermittent, unpredictable and that the employer does not expect to utilise on a long term basis, with ongoing work being entitled to permanent status.

It is interesting to note that BHP, despite employing the majority of its workforce via contractors, is nevertheless seeking to have women as 50% of its workforce (up from 17.5%) in about eight years.³⁴ This indicates a very high degree of control over the contractor workforce on site. It is a pity that BHP’s willingness to impose recruitment requirements on its contractors with respect to women does not extend to requiring contractors to pay their workforce the same as direct BHP employees, or to provide permanent employment.

³⁴ Australian Financial Review, (2016), 8 November 2016, page 10