AUTOMATION — SOCIETAL IMPACT

Motion

HON MATTHEW SWINBOURN (East Metropolitan) [11.25 am] — without notice: I move —

> That this house notes that the trend of increasing automation is impacting people, their employment security, their opportunities and the broader society in which they live.

Technology is, and has been, a tool for social and economic progress. Since the invention of the wheel to the invention of the smartphone, our capacity to improve our lives through technology and ingenuity has been almost limitless. However, as people experienced during the Industrial Revolution, technology also has the capacity to cause significant disruption to people's lives. I do not think it is controversial to say that with technological change, the increase in automation has the capacity to both improve our lives and cause significant disruption. When I refer to automation in this context, I mean the substitution of labour with technology in the production of goods and services. This definition should be viewed in a way that the aim of automation is to minimise human interaction from production for the purposes of efficiency and safety.

Technology as a tool implies an impartiality in how it is used. The benefit of technological and scientific progress to societies around the world, including our own, has been unprecedented. The change has been so drastic and so sustained that it is now difficult to imagine a future in which technologically driven economic growth is not a central tenet of our society. Unfortunately, technological disruption is often bundled with social friction. We often cannot benefit from technological advances without significant impacts on the way that people live and work. For some, these changes will be exciting and welcomed but for others, they might destroy their trade, a career, or simply their livelihood. Not surprisingly, many workers are worried about how a new wave of automation will affect their employment security and prospects. This angst is not without justification.

There is a clear trend that technology displaces workers. An example that most people are likely to be familiar with is the rise of Netflix and the fall of Blockbuster Video. In 2004, Blockbuster, as a bricks-and-mortar DVD and video rental outlet, had a revenue stream of just under $US6 billion. If we account for inflation, that is approximately $US8.26 billion in 2017. It also employed 84 700 people globally. Fourteen years later, Blockbuster is bankrupt and streaming services like Netflix have completely taken over the space it once filled. This is not just about one business not adjusting to a disruptor in its industry. In 2017, Netflix had a revenue of $11.7 billion but employed only 5 400 people. Consider that shift in revenue per employee for a moment—84 700 to 5 400 people. Also consider how, for an increase in revenue of roughly 40 per cent, Netflix employs less than seven per cent of what was Blockbuster's entire workforce. This is a global example, not from Australia, but it is one of many examples of how technological substitution has affected workers and the workforce.

An example closer to home is the introduction of autonomous haul trucks and trains in our mining industry. Of course, we do not quite have the dizzying figures like the Blockbuster–Netflix example, but there have certainly been impacts. In May this year, Rio Tinto announced that it would double its autonomous drilling fleet. By 2019, Rio Tinto will have 130 autonomous trucks, which equates to 30 per cent of its fleet.

Fortescue Metals Group and BHP are also moving towards automation at an increasing rate. This is an example of labour substitution in mining with the transition to an offsite workforce, generally in Perth, which is quite interesting given the debate that we have just had and some of the points that were raised about the shift of industry from the regional areas to the metropolitan area. This is a clear example of the effect of automation, but there are many others and more subtle examples of automation throughout our entire economy. It also importantly highlights that this is not just a problem of tomorrow; it is a problem of today. Many reports produced through academia, governments and management organisations have investigated the effect of automation on the workforce and society more broadly. One report from McKinsey & Company cites that from 2016 to 2030, between 400 million and 800 million individuals globally could be displaced from their jobs by automation, and will consequently need to find new employment. Of this displaced group, 375 million workers may need to switch occupational categories. This group requiring an occupational shift is 14 per cent of the global workforce. This report goes on to describe an economic outlook that implies a great transition not seen since we saw the movement of workers away from farms and into urban industry roles. But the extent and depth of this change and, thus, the possible social friction, is linked heavily to the pace of change and how we might manage it. Being the lucky country, of course, will not magically help us and it does not make us immune. Alongside many other developed economies, it is estimated that Australia will have about 23 per cent of work activity displaced by automation throughout this period. Other reports state that as many as one-third of Australian jobs could be automated by 2030, with a much higher amount in Western Australia—35 per cent. However, it should be noted that these figures do not represent the whole picture. Roughly five per cent of occupations are at risk of complete automation, in which a job is made completely redundant. It is also predicted

that 60 per cent of occupations will be complemented by new forms of automation in which machines take on repetitive work to free up humans to perform the more rewarding aspects of the job. This all means that we must be prepared. It is argued by leading consultancy firms that automation impacts in the future will come from waves of algorithm substitution, augmentation and, finally, autonomy. This outlines a time line over which change will take place. In this time line of disruption, where do the disrupted get their security of income and the opportunity to invest in bettering themselves for redeployment in the economy? The disrupted in this context are those who not only lose their jobs, but also are forced by necessity to take jobs on with little or no security. Routine tasks are often easiest to substitute with automation. But the trend is extending into cognitive tasks, not just physical labour; in other words, jobs within the services economy are also at risk.

Economic gain through this wave of automation could be immense. Some have predicted that Australia's gross domestic product could grow by $2.2 trillion by 2030 because of this new wave of automation. The crucial point here is that the magnitude of potential growth is related to how well we are able to transition our displaced workers. Of the $2.2 trillion increment, $1.2 trillion is hinged on the new wealth created by the displaced workers. It is clearly in Australia's interest, and Western Australia's interest more specifically, that we ensure workers are kept central to policy development around the impacts of automation. With all this potential economic growth, we must deliberate whether this is the ultimate measure of value that we will use to guide our decisions. It is said that automation will make Australian jobs safer, more satisfying and more valuable, but will it necessarily make the working lives of Australians better? It is known that automation has a disproportionately large effect on low to middle–income earners as it is their jobs that are often lost as a result of automation. It is commonly referred to as the hollowing out of the middle class, potentially continuing the trend of increasing inequality in our society by concentrating wealth in the hands of fewer people. Unfortunately, the trajectory of inequality driven by automation and technology is thus far clear: the winner-takes-all nature of technological rents across the world leads to a disproportionate concentration of wealth in a small group of people. For the vast majority of people who are left behind, it is fair to ask whether this is the way that society should be structured. We must endeavour to increase the living standards of everyone in our society, not just the very few, and productivity gains that are driven by technology and automation need to be for the benefit of the community at large.

Labour-substituting automation affects real wage growth. What is the point of growing the economy if the people in that economy, the people of the state and country, do not proportionally benefit from that growth? The wave of automation is commonly cited as different from technological changes for the main reason that it will have a broader effect on society, affecting not only blue-collar workers but also white-collar workers. Policy development in this area of technology must not just focus on the evident fiscal benefits of more efficient production. We have a duty to our children to consider the social and environmental impacts as well. Socially, we have increasing trends of inequality across our community and, sadly, this trend is set to continue if we do not respond to the demands of increasing automation and technological change. It is not just the inequality of wealth but, increasingly, an inequality of opportunity. We see a divide between those who can use technology and benefit from it and those who cannot use it and do not benefit from it, and we will continue to see an increasing divide between those who own the technology and those who do not.

There are things that we can do to prepare for this. The ongoing digital revolution is thought to be based on a more rapid and universal distribution of information and understanding. It is thus incredibly important to ensure that we continue to improve the technological and digital literacy of our people, particularly our children, into the future. As I previously pointed out, growth over the next decade will be tied to our ability to retrain and redeploy displaced workers. Our education system will be the marker of our future and we simply cannot be complacent. We must not underfund or underinvest in our future. To give members some context, in 2015 the federal government committed $190 million over four years to industry growth centres. In comparison, the United Kingdom government committed $3 billion to its Catapult centres over the same period. Given that we have an estimated $1 trillion-plus in economic growth at risk over the next decade, which hinges on our ability to retrain and redeploy our workers, it makes sense that we invest in appropriate training and education of our workers.

World-leading firms and organisations recognise the need for improved education policies. The International Monetary Fund has issued substantive recommendations for advanced economies, such as the economy of Australia. The IMF notes that education spending may be a particularly effective policy tool as it both increases the income of low-skilled workers and lifts the aggregate level of human capital in the economy. The IMF also notes the utility of taxation for redistributive gains in times of rapid change. A combination of education investment and progressive taxation systems can help mitigate the risk associated with both.

In conclusion, as we all know, Western Australia and Perth are geographically isolated places, but through technology, we are just as able to connect with the rest of the world as many other major cities and regions. Knowledge and innovation travels across borders more quickly, effectively and efficiently than ever before. In deliberating what our response is as representatives of the community, I hope that we keep foremost in our mind

the tangible impact of technology on people. It is clear that the future of automation will bring unprecedented benefits but also risks. Luckily, the future is what we make it. The decisions of today will live with generations. Surely we want our children to look back and be proud of what we did in setting an example for the global economy to transition into a technological future. Automation is not inherently bad so long as the productivity benefits are shared by the community, we anticipate and mitigate the impacts on workers, and we ensure that the benefits are not concentrated to the narrow few. We should forge a future in which all of us win, not just the very few. I commend the motion to the house.

HON JACQUI BOYDELL (Mining and Pastoral — Deputy Leader of the Nationals WA) [11.39 am]: Given the current predicament with my voice, I will make a quick contribution. I thank Hon Matthew Swinbourn for bringing this motion to the house and I concur with most of his comments. The challenge facing Western Australia today is what the Labor government is doing about the issues the member, very correctly, put to the house today and that we are all aware of. The people of Western Australia are concerned about how they fit into the automation process. It is not just in mining, but also in agriculture and other areas of industry. Populations have dealt with the issue of automation since the beginning of time, with the introduction of the horse and cart, and the Industrial Revolution et cetera. However, in this day and age of increased communication, the internet, and with advances in technology being vast and quick, it is often difficult for government to respond to changes in a timely manner. The people of Western Australia expect the government to do that and to find a way for them to engage with that automation process. I think that will be through education and the government engaging with industries to understand where they are heading with the education of their workforces and what they need.

I have spoken to lots of mining companies in the Mining and Pastoral Region that are dealing with extensive changes to training and are looking to reinvest in their workforce and re-educate workers so that they will still be involved in the automation process. The reality is that people will lose their jobs. In the 2017 state election, the Nationals WA proposed an increase to the special lease rental royalty. The main argument against that proposal by many commentators and, indeed, Mark McGowan—who is now the Premier but was Leader of the Opposition at the time—was that it would cost jobs. At the time we knew that automation was the process that would cost the most jobs in the mining industry. The mining industry knows that and people who work in the industry know that. It is incumbent on the government to find a way to bring balance back to the people of Western Australia, because automation is occurring. Hon Matthew Swinbourn cited jobs in our mining industry that have already been lost and the massive impact it has had on families. I feel for them.

I appeal to government members. It is incumbent upon them to find a way to deal with industry and address this automation process to ensure that the people of Western Australia have some fairness. It is happening and the government cannot control it. It cannot tell Rio Tinto, BHP or Fortescue Metals Group not to automate their processes, because automation will increase their productivity and viability and we want these companies to succeed. The success of the mining industry is paramount to the success of Western Australia and, indeed, the Australian economy. No-one disputes that. We are being asked to find a way for the people of Western Australia to share in the profit. As automation progresses, payroll tax will diminish because there will be fewer jobs and those companies' productivity will increase. How is the government addressing that? That is its challenge. I am heartened when members of the government's backbench bring these issues to this chamber. I hope the government is having these discussions in its party room. That is the government's challenge and where it can make a change. It cannot direct the mining industry not to automate. Of course, the industry can and should take advantage of automation. What are we getting in return for the people of Western Australia? That is the remaining challenge.

We discussed the automation process previously in this house during budget estimates of last year, I believe. It was flagged at that time, if I read back *Hansard*, that automation is something that the government needs to address. It was the comments of Hon Samantha Rowe. She said —

> I think that is a real issue that governments need to look at in terms of the role automation and coding will play in the future; we need to start preparing for all these different things.

I agree with those comments. The ball is in the government's court; that is my contribution today. The Nationals WA have a position on this and we took it to the election. We still believe it is a fair process for the people of Western Australia to expect the mining industry to have some sort of fair return for assets that are finite. Every day that we talk about this we sell more. Production is increasing; jobs are reducing; automation is increasing; payroll tax is reducing, which is a threat to government in the way it manages its budget; and the productivity and profits of these organisations is expanding daily. All we ask is to have a share of that. The government needs to step into that space.

I am really happy to have this discussion today, Hon Matthew Swinbourn. I would say that this is no longer a political issue. It was a political issue and football during the election campaign, as we would expect issues to be, but this is a serious issue facing the people of Western Australia. We have known, for probably 10 years, the

effect that automation will have on jobs, particularly in the mining industry, and we need to find a solution to that. We have a policy solution for that that we think will deliver some fair balance to the people of Western Australia. The challenge for the McGowan government is: what is its answer to that? I want to hear its answer to that. In over 18 months of government I still do not have an answer. I thank Hon Matthew Swinbourn for bringing this issue to the house. I hope he continues to have those conversations in his party room, because the people who elected him expect him to do that. I will continue to push our policy position, because that is a way to deliver a fair share for all Western Australians.

The ACTING PRESIDENT (Hon Dr Steve Thomas): The question is the motion be agreed. Because I like his contributions, I am going to give the call to Hon Kyle McGinn.

HON KYLE McGINN (Mining and Pastoral) [11.47 am]: Firstly, I want to thank Hon Matthew Swinbourn for bringing this motion to the house. This is a very timely discussion for us to be having in this house. It is critical that we talk this out and, as members have already said in their contributions, find solutions for where we are heading.

My experience with automation has been scary, to be honest. In the maritime sector, automation has always been a threat to workers' jobs. A couple of years ago I travelled to Los Angeles and was very lucky to get a tour of the port of Los Angeles. The Los Angeles port is one of the biggest in the world. I went with the president of the longshoremen's union over there and we had a look at operations while they were happening. Thousands of workers were in the port. There were at least three ships in: big Maersk Line container carriers. Cranes were operating everywhere, trucks were going up and down the wharf and people were stacking containers out the back. Supervisors and administration staff were there making sure that everything was operating. It was amazing to watch; it was like poetry in motion. Then the president took me over to the port of Long Beach. The Long Beach port was the first—that I am aware of—and the biggest automated port in America. We drove into the port and the first thing I noticed was that there were no people. There were the same sort of trucks as in the other port, but they did not have a cab on them. They were just a four-wheel base with two axles that had a container on top, and hundreds of them were driving around the port. They were completely in line, they were going exactly they were supposed to, there were no crashes and they were not off target at all—off they went. Then we got down to the cranes and they were all fully automated as well. There were two spotters standing next to where the containers were being picked up and one supervisor for the whole area who had everything on an iPad. Absolutely everything was being controlled by, and could be contacted with, an iPad. Behind the cranes, the containers were being loaded onto trucks before leaving the port. When a truck driver came in, they would reverse into a targeted position, get out of the cab, hop into a protection box and the automated crane would come across over the top and drop a box on top of the truck. The driver then got out of the protection box, hopped into the truck and off they went. I asked the supervisor how this all happened; how it went from thousands of workers to two spotters up the top. He said that the company had settled for having the spotters there, but the reality was that they were not doing anything. The reality was that, eventually, they would be taken away and there would be no people there. While we were standing there talking, one of the automated MAFI trucks stopped, reversed and took off to the shed. When the batteries run low on the MAFIs, they tell themselves to go back to the workshop, where an automated crane takes off the old battery and puts on a new battery. We do not even have the maintenance jobs of replacing batteries on the automated machinery on this port!

When I spoke to the president about how this had affected stevedoring in Los Angeles port, I was told they had lost thousands of workers from this port but had gained 180 maintenance jobs. The labour pool went from thousands to 180 overnight. I will definitely concede that automation in the maritime sector is expensive; it costs hundreds and hundreds of millions of dollars to build an automated port. The productivity will eventually outdo the human workforce, but that is not what it is about. That is not what I saw it was about in the maritime sector. The maritime sector in Australia has a proud history of standing strong for their rights and conditions and a proud history of standing strong on safety. The attacks I saw whilst I was with the Maritime Union of Australia were more about removing a workforce to stop industrial issues. The attack was to get rid of that human element; whether it was about productivity or not, they accepted the fact that they could remove the union from that workplace. I asked the president where the crane drivers were, because being a crane driver is a pretty skilled position. The cranes were dual-lifting containers—two containers at once were going onto a ship, which was phenomenal for me to see. He drove me about two kilometres to a building and we went up the top to a room with two desks with computer screens. There was one person standing in front of them, and all they were doing was turning off alarms when a container went onto a ship. I could not see that they needed any super expertise to do that role. It went from having a team of trained crane drivers who had families and everything else down to one person standing in front of a computer. It was absolutely scary stuff.

Up in the Pilbara region and in the Mining and Pastoral electorate, another aspect of automation that is scary to me is that we do not fully understand its impacts on our young people or future jobs. When I walked into Kmart in

Karratha and saw the automation there, I was flabbergasted. I could not believe that in a small town we would take jobs out of Kmart and replace them with automated machines. We see it in Perth and everything—automation is coming in—but what I do not think employers understand or care about is that those jobs were typically taken by high school students, who wanted part-time work. That was gateway employment for so many people in high school. Those part-time roles also provide employment for people at university. We have taken that away, so instead of three or four kids working at the checkout after school, one manager stands there to make sure that no-one does the "five-finger discount", which is another downside to automation that employers did not see. I am sure they started losing a lot more of their goods once they realised that the machines do not detect stealing.

It is scary to think that we brought in this automation, which, again, in my opinion, is about profits for the employer in that retail space. When they take away the kids and replace them with automation, where do the kids go? When they reach 18 years of age, they have not had an entry-level job because they could not get one—automation took it away. The companies are Kmart, Big W, Woolworths and Coles. I could talk all day about these retailers. It is really sad to think that we did not think about entry-level jobs and how we could have at least maintained a percentage of people there. Employers have a social responsibility. We talk about social responsibility, particularly in the mining industry in the regions. I think all big businesses, franchises and chains in regional areas have a social responsibility. They should be focused on making sure that the community is not impacted just so their back pockets can get fuller. Hon Jacqui Boydell and Hon Matthew Swinbourn touched on the mining industry.

What upsets me the most is when we have discussions with employers about automation, and they say, "You're not going to lose jobs. This job will be replaced. If you want to take voluntary redundancy, you can have that. We might be able to place you at another mine site in the same role." Eventually, that also will be automated. The problem I see is that we are reducing the labour pool. As I said about the example in Los Angeles, the company agreed to put in two spotters, but they will not be there forever because they are not needed. They may create roles in the short term and say, "No-one's lost a job", but slowly and surely that labour pool will reduce, until the reality becomes one person controlling three or four trucks and we have lost a workforce. On a two-swing system, that is six jobs.

The other problem is that once a job is taken away from a worksite, a company can send that job anywhere. Let us look at the call centres. How quickly did they go offshore? How long would it take the technology to come in—I am sure it is already there—so that rather than driving automated trucks from Perth, where everyone thinks jobs will be created, those roles will end up overseas? What is stopping companies from taking them away from us altogether and operating our mines from India? Nothing is stopping that from happening. What about the automation that retailers are installing? Why are we not building them and creating another industry to fill the gap in the labour market? Not only is big business automating things to create better productivity for itself, but also we are not even building the automation that is taking our jobs. A lot of it is coming from China.

HON TJORN SIBMA (North Metropolitan) [11.57 am]: This is one of the more enjoyable motions I have had the privilege to speak to in this chamber. I think there is a degree of unanimity among viewpoints here. There will also be areas of divergence but I begin by saying that I think it is very easy to ground this kind of debate in a sense of apprehension and fear and to focus on losses that emerge from the uptake of technologies or processes such as automation. I think that is quite understandable and quite reasonable. I differ somewhat from the definition of automation as provided by Hon Matthew Swinbourn, which was, effectively, the displacement of human labour inputs with a machine or automated input. It depends on what level we are looking at. Certainly, whole jobs and roles are displaced, but, equally, displaced tasks or sub-tasks within existing roles can be done more easily and the human-owned component grows and changes in some way.

I think we also need to get a sense of proportion when we talk about the sweep of automation through the Western Australian economy. There is not only the emphasis that miners such as Rio Tinto and BHP have put on this area, but also the more recent entrants, in the last 10 years, into the iron ore industry. I refer here to Hancock Prospecting and Roy Hill. Moving from being effectively a mining tenement holder to a producer in such a short time gave that company the opportunity to consider new and emerging technologies, and it moved quickly to create its own remote operation centre. The conclusion I draw from that is that, as much as automation involves the displacement of existing jobs, it can also lead to the creation of new jobs and new roles. There has to be a point at which we accept reality for what it is, and embrace that challenge. That will not be easy.

I fear what Hon Matthew Swinbourn was alluding to—also mentioned in the contribution by Hon Kyle McGinn—that we can very easily jump to the conclusion that we will have a dystopian future, in which a very small proportion of our community is engaged in useful work, while others are completely and utterly isolated from that opportunity. I do not necessarily subscribe to that vision of the future, but I understand the portents in the argument made. There is an opportunity and responsibility, for not only the government but also every member of this chamber and the other place, to come to grips with the scope and scale of what is broadly referred to as the fourth industrial revolution. It encompasses everything from automation to 3D printing, better sensor arrays,

nanotechnology and biotechnology. So much is happening so quickly that it is difficult for us to comprehend. I sometimes worry, not about the fears that the member foreshadowed, although I understand them, but about the capacity of chambers such as this and institutions such as ours to respond in a practical way to the social changes driven by technological uptake. The mere fact that we carry around in our pockets now a device that has the capacity of the large-scale supercomputers of 50 years ago that had to be hauled around in an aircraft is a good reminder that things move quickly.

Hon Matthew Swinbourn: Honourable member, there is more computing power in one of these smartphones than there was on *Apollo 11*.

Hon TJORN SIBMA: Indeed, and guess what? No-one in this chamber who carries one of these is planning the next space mission; most of us are using them to take selfies! I do not fall into the camp of either pessimism or optimism when it comes to technological advancement. The cognitive architecture laid down over millions of years between our ears is a pretty good guide to how we use technology. The real question is how we harness it, and avoid a situation in which the technology drives us. In some areas, we are in that position. As a young lad, I loved the movie *Terminator*.

Hon Charles Smith: Someone had to mention it!

Hon TJORN SIBMA: Someone had to mention it, but I remember having nightmares, worrying about this dystopian future in which cybernetic organisms were determined to rub out the human race. Thankfully, that has not yet happened. The sad thing is that the human race retains the capacity to do that to itself, much more than any technological construction. When it comes to our responsibility here to make meaningful contributions to preparing our community for these changes, we can but focus on our education system and evaluate whether, in the way it is structured, from primary to secondary to tertiary and vocational, we are preparing our children for the future. My pessimistic assessment is that we are probably not. I say that because during the last few years that I spent associated with the engineering faculty at the University of Western Australia, not as an engineer but as an observer, it was remarked with a degree of depressing frequency by professors in mathematics that the core competency—the mathematical understanding—of first-year students at UWA had deteriorated significantly over the last 10 to 20 years. In their view, undergraduates were coming into the university system with the mathematical capacity that year 10 or year 11 students undertaking the tertiary entrance examination, the predecessor to the Australian tertiary admission rank, would have had. I do not know why that is.

If we are to deal with the future and deal with the challenges that present themselves now, we cannot necessarily focus on the loss; we need to focus on the gains. If we abrogate the responsibility of ensuring that the abiding focus of our education system is grounding our children in the hard sciences and mathematics, I think we will let them down. The kinds of losses and the difficulties in transition that we are seeing now, which are emergent, will be magnified many times over. At that stage, we should hang our heads in shame if we have not prepared students entering the school system now for this future.

My observation would be that if the education debate—this is no reflection on any education minister; it is how this debate plays out in the media—focuses on behaviour, metrics like NAPLAN which do not resonate with people in a meaningful way, or building on softer skills or social skills or self-confidence, I think we are missing the main game in education in the conversations that we have about it. I am not convinced that my son, who is not yet two, will enter a system that is gearing him for success. All of us in this chamber need to be reassured that we are doing the right thing at the earliest stages to ensure that the kinds of displacement and dysfunction that might arise from the rapid uptake of disruptive technologies such as this do not disadvantage us and, on the contrary, we are in a position to take advantage of it.

I commend this motion to the house. It is one of the more interesting ones that we have had the pleasure to discuss on a Thursday.

HON ALISON XAMON (North Metropolitan) [12.07 pm]: I thank Hon Matthew Swinbourn for bringing this motion on for discussion. It is an important motion for this chamber to discuss. The Greens want everyone to be able to enjoy the opportunities of the benefits of progress. Too often this is not happening, and the gap between the rich and the poor is getting wider. The Greens are concerned that this will be exacerbated by increased automation. I say that knowing that the evidence seems to indicate that this concern is justified. The economic bonus arising out of automation does not seem to trickle down to increased wages. It is expected that automation will make a $2.2 trillion boost to productivity in Australia between 2015 and 2030, but whether productivity gains will be redistributed equally remains highly questionable.

Since the 1970s across most Organisation for Economic Cooperation and Development countries, the share of income going to wages has been decreasing and the share being reinvested into capital, cash reserves, equipment and machinery has been increasing. Clearly, when profits are being made from productivity gains, they are going

to capital rather than labour, reflecting growing income inequality in general. Indeed, CEO compensation has been growing much faster than average workers' wages. The ratio of CEOs' average pay to workers' average pay in large US corporations went from 20 to one in 1965 to a whopping 271 to one in 2016. These signs point to the fact that those with less bargaining power are less likely to reap the rewards of productivity gains arising from automation. A growing number of Australian and international experts are saying that we need to give workers more power to demand a pay rise in the face of increasing automation. Eminent workplace relations academic Joe Isaac has said that workers and unions need more power to address the growing problem of wages falling behind productivity growth. Slow wages growth in recent years has been associated with growing inequality in favour of high-income earners. The government must take responsibility for keeping pace with disruptive technologies and develop legislation and regulations to protect workers' rights, including fair pay and conditions, and safety.

The predictions are that almost no matter what our role, whether we are a CEO or a cleaner, everyone will be doing their jobs differently within the next 20 years. About 40 per cent of all jobs in Australia are predicted to disappear with automation. Job growth is predicted to be strong in the caring economy, with unmet projected demand in child care, aged care, health care, disability services and education. These jobs are traditionally pretty poorly paid. I am particularly concerned about the impact on already marginalised populations, in particular older Australians and people with disability, mental health issues and those sorts of things. Thus far, we have completely failed to address the gender pay gap adequately and I am concerned that it will get worse under increased automation.

The government needs to lead the way with some very clear and detailed education, innovation and technology policies that will need to be funded adequately. We need a commitment to link education and innovation policy with funding, which is significantly lacking compared with that in other countries. We were bad in responding to the decline in car manufacturing. We need proactive policies to respond to the coming challenges. Artificial intelligence is changing the future of work and we will need to be proactive.

I will make some comments about training. Training is already shifting to accommodate the changes in industries as they become more automated. New jobs will be created and old jobs will change so significantly that effectively they will cease to exist. Certainly, the numbers will be substantially reduced. As has already been alluded to in the budget estimates hearings this year, we talked about the partnership between South Metropolitan TAFE and the resources sector to develop and provide specific training for people whose roles are affected by increasing automation. This is exactly the sort of proactive work in which our training sector should be involved. At the time, I took the opportunity to ask whether we were already forecasting which other industries would be affected by automation and preparing to train those workers. The answer at the time was that there were no plans to partner with other industries in this fashion.

The skills training councils, which form part of the apparatus that looks forward to future job growth and training needs, are in the process of undergoing a significant revamp. This is due to be completed in the middle of next year. We will need these bodies to be effective and strongly engaged with industry to ensure that the training sector gets the right information to build the right courses to prepare people for the jobs of the future. These re-skilling opportunities need to be accessible and affordable. For most people, this means that we are looking at a future of training that will need to be delivered by an effective TAFE system. We also have to be sure that the training that we deliver gives people high-level transferable skills that will form a key part of every job or career that a person might undertake over the course of their lifetime. We must also make sure that people are fluid in what they are being trained for.

Artificial intelligence will transform the way we live and work. There are already very clear indications that if we do not act, artificial intelligence is going to increase the already large gap between the richest and the poorest in our communities. Government has a very key role to play to ensure that community structures, such as the Western Australian Industrial Relations Commission and unions, are suitably resourced and supported so that all workers benefit from productivity gains from the increased use of artificial intelligence. Likewise, we need to make sure future training needs proactively meet those requirements. If we do not, we will find that the social cost for the community will be untenable.

HON MARTIN PRITCHARD (North Metropolitan) [12.15 pm]: I thank Hon Matthew Swinbourn for moving this motion. We spend time a lot of time in this house debating legislation that is reactive to issues and to things that are happening in the community, but this motion is forward-looking and will be enjoyable to discuss. In debating this motion I will draw on my experience of working in the retail industry and look at this matter through that prism. I started working in retail in 1978, which seems a while ago now. At that time, we worked a 40-hour week, and trading hours were 8.30 am to 5.30 pm, Monday to Friday, and Saturdays from 9.00 am to 12 noon. Most stores, at least grocery stores, were standalone stores with their own parking areas and we worked in the sorts of jobs that younger people will not have heard of, like pricing. We used to put the price on every item in the store. When people went through the checkouts, somebody at the end of the checkout

would stack their goods into a bag or, at that time, into old cartons, which was very forward-thinking when we consider the state of the environment now.

Hon Alannah MacTiernan: When I was a checkout chick at Charlie Carters we used to have to learn the prices off by heart the night before.

Hon MARTIN PRITCHARD: The minister would now be able to get a job at Aldi! There were a number of stores around then, including Tom the Cheap and Charlie Carters. The stores tended to be standalone, they had their own car parks and everything was paid for in cash. The price of each good had to be punched into the register. Things were quite different back then and there seemed to be a focus on customer service. I also believe, from a business point of view, that they used to get the balance better back then with regard to their investors, employees and the community. That was obviously a balancing act.

The sorts of changes that have occurred in retail include changes to trading hours. We proceeded to Thursday night trading, Saturday afternoon trading and then to Sunday trading; stores now trade pretty much every day of the year, which is a disrupter, but that is probably a debate for another time. I also note that the Shop, Distributive and Allied Employees Association, the union that I worked for for many years, is currently fighting a battle. Now most of the stores are located within major complexes and those complexes are trying to extract profits from staff parking at those complexes. Again, that is probably a debate for another time.

I am not going to suggest that disruptive technologies are a bad thing within the retail industry, but they have decreased the availability of manual jobs.

For instance, now that we have moved to using barcodes on items, it takes away the jobs of all the people who used to price the items. The job of the person who used to go around the store and order all the items for the following week has also been severely reduced. I do not think it has been replaced yet, but it has been severely reduced. Of course, modern registers are set up so that sales go through rather quickly. There is also now the disruptor of unmanned registers. If the companies had their way, they would have introduced those across the whole store, but the pushback from customers, who rightfully expect service, means that usually a couple of registers are manned by a human being, which are the ones that I always use. That disruptive technology was available many years ago. I remember Foodland flirted with the idea. It took the union out there to look at the unmanned registers. It did not proceed with them. It probably did not believe the sales pitch of the companies that were trying to flog the unmanned registers. I think it was probably quite wise to do so. As Hon Kyle McGinn mentioned, there are other issues, because we are dealing with human beings. If there is an unmanned register, there is a great temptation by families that are doing it tough to put through rump steak instead of fillet steak to try to ease the burden on the family. There are other issues to think of with these technologies.

The reason I am pleased that this debate has come on is that we cannot leave it to market forces or the companies that are introducing these technologies, because they do not foresee all the difficulties that may arise. Also, the motivation for introducing these technologies has to be questioned more and more. For instance, when the banks introduced reditellers, it was an opportunity to reduce their workforce. They introduced them at no cost and once they had reduced their workforce and people had got used to the reditellers, they started to charge a flat $2 fee—it was certainly not cost recovery. That was just another opportunity for the banks to improve their profits. So we cannot leave it to the companies that are introducing these technologies.

Touching on what Hon Tjorn Sibma was talking about, I read an article today that said that we should not be afraid of these new technologies, because although they displace a workforce for a period and there is pain at that time, the trend in the unemployment rate shows that it has not grown. In my view, the truth is a little more sinister than that. What is happening is that the introduction of technologies is displacing a permanent workforce and creating a workforce that is less permanent and more casualised and also causing a growth in underemployment. I am not sure that the unemployment figures catch that properly. In that way, people are not employed for five days a week and so they struggle and try to balance two part-time jobs or a casual job. I am not sure that we, as legislators, should see that as a great thing. It puts more and more pressure on families.

I am very keen for this debate to continue. We should not hold back progress. These disruptors will come into different industries, but we need to do whatever we can to make sure that we do not lose the fundamentals of that. As I said, we are here to represent a constituency, and that constituency is not necessarily just the major companies that seem to be focused on profits for their shareholders, whereas in the past they balanced that a little more. Our focus should be on the full constituency and the impacts these changes have on it, without just blindly accepting we are moving towards progress.

In the few seconds I have left, I would like to say there are other organisations trying to deal with this issue, and I think it is incumbent upon us, unions and companies to try to embrace this new technology, but to do so in a way that looks after our constituency.

Motion lapsed, pursuant to standing orders.