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Stephen Palethorpe  
Secretary  
Senate Select Committee on the Future of Work and Workers  
PO Box 6100  
CANBERRA ACT 2601  
[futureofwork.sen@aph.gov.au](mailto:futureofwork.sen@aph.gov.au)

Dear Mr Palethorpe

Thank you for taking the initiative to conduct a Senate Inquiry into the future of work and workers, and for inviting public submissions to it. I am very pleased to be making this submission on behalf of AHRI.

## **The future of work: hopes and fears**

In July and August last year the Australian HR Institute surveyed 1,128 members on their [hopes and fears](#) about the future of work, workplaces and the Australian workforce.

Included among the skill sets of HR practitioners are the areas of workforce planning, organisational design and industrial relations, in addition to responsibilities in areas such as recruitment and retention.

The questions asked of respondents to the survey were under four headings:

1. Their idea of the future
2. Their own work as HR practitioners
3. Their own organisation
4. The workforce in general.

The survey focus was on the workplace impact of the emerging digital technologies of robotics, cognitive machines and artificial intelligence with respect to the hopes and fears of the 1,128 AHRI respondents.



## Hopes

A summary of the hopes of respondents suggests a mood of optimism, as indicated in the following findings:

- 96% see emerging technologies as an opportunity rather than a threat
- 79% believe emerging technologies will improve processes and contribute to productivity
- 59% believe fewer than 10% of human jobs *in their organisation* will be replaced by emerging technologies
- On the *workforce in general*, 51% do not expect emerging technologies to replace many jobs in the future
- Of the jobs that are replaced by technology, 78% expect the technology will be augmented with a human presence (through job re-design)
- 62% believe today's workforce planners are capable of planning for a future workforce
- 87% are confident they personally will be able to acquire skills and knowledge to meet future work challenges (via further study)
- 70% disagree that the role of HR will diminish with the impact of new technology
- 63% say they are preparing to focus on the parts of their job that rely on human skills (because other parts of their job can be replaced by new technologies).

## Fears

The relative optimism expressed in respondents' hopes is moderated by their fears and uncertainties, as indicated in the following findings:

- only 34% believe robotics and AI will create more jobs than they replace (and 45% are unsure)

- even if robotics and AI create new jobs, 69% believe there will be a significant lag in the redeployment of displaced workers
- 43% believe the gig economy will be an offshoot of emerging workplace technologies, and will have a negative workforce impact on:
  - performance
  - customer service
  - culture
  - ethical behaviour.
- 43% report being apprehensive or unsure about the future challenges and opportunities in their own HR work.

### **The future is when?**

‘Future’ is a word that contains different connotations for different people. To gauge whether the respondents came to the survey with a roughly common idea of the word, they were asked to indicate when they thought the future of work would reveal itself. The findings on that question were as follows:

- 81% of the sample saw the future presenting itself in the workplace sometime between one and 10 years’ time
- 7% saw the future more than 15 years away
- 12% saw the future workplace starting now or in the immediate future.

Given the role of emerging digital technologies in the widespread shake-up of business models before our eyes in areas such as transport (e.g. Uber), news (e.g. online and instant rather than paper), publishing (Amazon), for practical purposes the 12% in this sample have much going for their estimate of ‘now or the immediate future’ rather than some years away. For that reason, and without discounting the legitimate perspective of the 88%, the minority perspective will be a focal point of this submission.

With respect to the 88%, they may well be thinking that despite changes we are presently experiencing and witnessing, it may be some years before the technologies that are enabling these changes shake down into a future that we can recognise as markedly different from the present.

They may have in mind a future that relies not just on the mere availability of the technologies and the enthusiasm of the technologists, but on decisions by policy makers, legislators and consumers that affect the extent to which they are taken up.

There is no doubt that the world has gained greatly by the introduction of technological solutions to human problems both in business and in private lives. Our cars are much cheaper because of the intervention of robotics in their production, for example, and our private lives are enriched by machines that wash the clothes we wear and the dishes on which we eat.

### **Not just change, but the pace of change**

That said, the shake-up of business models we are now witnessing is not just about the things we are *seeing* change, or anticipating *what* will change, or what *form* change will take, but rather how *fast* things are changing. The speed of change is the cause of much disquiet because it means there is little time to anticipate or adjust to the changes.

Whether the change catalyst takes the form of deep learning machines, artificial intelligence or human beings working alongside and in harmony with new technologies, processes and jobs are already being re-designed as computers and bots move in to take over all or parts of work that humans have been doing.

As this incursion by machines into workplaces becomes more prevalent and gathers more pace, and because we are unlikely to enjoy the luxury of sitting around and waiting to find out what the actual outcomes of their adoption is going to look like, the environment will increasingly require business leaders to take risks and be prepared to fail. As suggested by a [2017 PwC report](#) and in keeping with the notion of swift change, if the risks look like failing, there is sound argument for concluding that the present environment is one during which it is best that they fail fast.

## **To what extent is the future of work now? Case studies**

As already indicated, there are signs that the future is already upon us and is disturbing the sense of order we have become used to.

Robotics has already changed the face of sectors such as manufacturing, but we don't have to look far to see other examples of business models thrown into disarray, the relatively sudden emergence of brands such as Amazon and Uber being two potent examples.

### **Amazon**

Amazon has already caused turmoil in the publishing industry and the retail sector, but its growth has been exponential in more recent times, and has not simply relied on computer technology applied to the online ordering side of its business, but also the use of sophisticated Kiva robots to package and dispatch parcels in its warehouses – a job previously done by human beings driving forklifts. It's safe to say humans will never again be called upon to do that work because we can no longer compete, either in muscle power or productivity levels. The consolation is that perhaps they are areas in which we don't want to compete, just as we no longer want to wash our own clothes or our own dishes.

Among other business models affected in the present, is transport. Not that long ago the taxi services in the developed world operated as near monopolies. Now Uber is the shiny new thing.

### **Technology and the human factor**

Toby Walsh holds a chair in Artificial Intelligence at the University of NSW, and is the author of a 2017 book titled *It's Alive! Artificial intelligence from the logic piano to killer robots*.

One of the insights in Professor Walsh's book reads as follows:

“The industrial revolution liberated production from the limitations of our muscles, and this new digital revolution may well liberate our economies from the limitations of our minds”

Both Amazon and Uber are largely involved in employing machines and robots to further the liberation of reliance on human muscles.

But whatever happens with respect to the development of machines and bots in changing business models and hence the nature of work, workplaces and workforces, human beings will remain central in terms of *what* happens, the *way* it happens, and *whether* it happens.

## **Uber**

For example, despite Uber's reliance on a sophisticated digital technology, its rise has been accompanied by allegations that are essentially 'old world': claims of corporate malpractice and driver abuse that have led to the company being banned in some major cities, London being one. The machines behind the Uber model are not being accused of misbehaving because while machines can malfunction, they can't at present misbehave. The humans employed by the company are the problem with respect to misbehavior, whether it takes the form of sexual harassment of its engineers or questionable industrial practices with respect to its drivers.

From another perspective, it's already being said that Uber is just a stepping stone towards driverless cars, which are apparently well down the track to being consumer-ready.

If that is the case, and it may be, whether foolproof driverless cars stack up as a viable business model remains to be seen.

At least two questions will be critical on that issue: the first is trust. Will we human beings be willing to take the leap of faith involved in submitting our safety on the road to a machine?

The second issue is love of the old technology. It's not necessary to be a rev-head to understand the pleasure many human beings take in driving a late-model car in which the driver exercises control.

Add to that a damning judgement by the former *Top Gear* host Jeremy Clarkson, who claimed a state-of-the-art automated car he had test-driven made two critical errors that could have killed him had he not overridden the automated controls.

Exercising trust and indulging in pleasure are very human characteristics, reinforcing the reality that technological capability alone may not give us a definitive answer as to what future business models and workplaces will look like, given the fact that human beings are finally the potential consumers, and they will make or break a business model.

## **News**

Taking the second part of Professor Walsh's quote, the commotion being felt in the newspaper business is an indication of the digital revolution 'liberating our economies from the limitations of our minds'.

For the world's newspaper proprietors, the last decade or so has been a painful liberation, with many prestigious global mastheads floundering.

Daily news has been supplanted by news by the minute. And it's now also 'curated' news according to our 'personal preferences'. It's news we choose to hear. It's been observed that Donald Trump was elected by a sizable population of voters who only tuned into news outlets they wanted to hear, ignoring the traditional news mastheads such as the *New York Times* and *Washington Post*.

In addition, the emergence of artificial intelligence and machine learning companies - such as Automated Insights – mean that we are now subject to news from outlets which are using bots that can write computer-generated news reports for standard organizations like Associated Press. Those reports are being published in significant numbers and in some quarters it's said that they exceed the number written by human journalists.

Automated Insights uses raw data and applies mechanical and formulaic techniques to produce news reports. As one commentator observed, they may not be Tolstoy, but they are readable.

With diminishing resources in newsrooms, and the filtering and sub-editing of news content increasingly being dispensed with for economic reasons, the resort to inexpensive and highly productive bots that operate as re-write desks are proving a temptation too strong to resist.

But like the driverless car, whether human consumers will continue to place trust in a computer's data-driven news versus a human being's judgement, remains to be seen in the long run.

### **Trust: human pilot versus automated pilot**

Similar questions are arising in the airline industry where automated functions are increasingly taking over human-pilot functions. That question was played out in 2009 when a human pilot called Sully by his colleagues overrode the computer data in his cockpit and landed his plane on the Hudson River. Had Sully followed the flawed computer advice the 155 passengers and crew would have been killed in addition to the occupants of whichever New York building the plane crashed into.

The technology to fly planes automatically already exists, but whose judgement will be trusted when an automated pilot disagrees with a human pilot? In addition, if too much gets handed over to the machine, is there a risk that humans will lose the skills they have stopped using? Sully had not lost the skills he had built over a great many flight hours, but will that remain true in a future that might see struggling airlines increasingly trust their cheaper computers rather than their more expensive humans to fly their planes.

We are told that the average time a pilot is actively in charge of a flight can be a little as three minutes. Airline companies know that, and they know their planes can operate perfectly well on automatic pilot. Yet the business leaders of those companies invest thousands of dollars in training and re-training their pilots each year.

Last year the pilot and co-pilot of an Air India flight [left the cockpit empty](#) during what was a personal disagreement. While the plane kept flying (thanks to the computer) the airline fired both of the human pilots for breaching a company policy that requires at least one human pilot to always be in the cockpit, alongside the computer.

This example suggests that the decisions about our future are not just about matters relating to technology and economics; they are also about societal expectation and consumer trust.

Airline passengers know that their human pilots and co-pilots care about the flight in which they are in charge and they care about the passengers on board. But it's safe to say that an automated computer operating a plane doesn't give a damn. Unlike the human, its skin is not in the game.

## **The business case for automation**

To paraphrase Professor Toby Walsh, the business case for automating or not automating comes down to answering three questions:

1. Does automation make technical sense?
2. Does automation make economic sense? Is there a productivity dividend?
3. Does automation fit within what's accepted by society and what customers want?

These are not questions that a computer can finally answer, though a computer could provide data to assist in supporting an answer. In the end, though, decisions about automation should be the prerogative of human beings. But will that always be so in a future that places increasing trust in the computer?

Toby Walsh notes a widely cited 2013 study by the University of Oxford's Frey and Osborne which predicted the fate of 702 jobs with respect to their likelihood of being automated or not automated. The authors of the Oxford report trained a computer-driven classifier to assist in predicting those jobs using machine learning.

To illustrate the limitations of the technique, Walsh notes that Frey and Osborne put the probability of bicycle repairer at 94% likelihood of being automated. As a cyclist who is friends with a bicycle shop owner, Walsh concludes that there is almost zero chance of even small parts of the job of bicycle repairer being automated within the next 20 or 30 years, essentially on the grounds of economic viability. He notes that bicycles are fiddly and irregular with parts that wear, stretch and break. The cost to automate would be prohibitive, especially considering that human repairers are poorly paid and willing to do the work cheaply. He adds that the job is largely social, where repairers often mix with riders to enthuse about the

latest kit, make jokes, drink coffee and talk politics. They choose to do these things with humans, not robots.

Walsh also notes the irony of the Oxford study arriving at such a flawed conclusion by looking at technical viability alone and by using a computer to form conclusions that rely on a crude judgement arrived at by a machine compared with a more nuanced judgement that could have been made with greater human input.

The bicycle repairer example is looking at a future informed by the present and extending it out 20 or 30 years, though with no degree of certainty. But there may be a time when automated repairs are economically viable, in which case the human bicycle repairer may disappear.

That world will be a very different world, and one about which the 88% of AHRI's survey respondents are right in their belief that attempting to imagine what that future looks like will require making guesses. They might be informed by a present perspective but finally they will be little more than guesses as to *what* the future will look like or *when* it will reveal itself.

### **Consumer limitations on the take-up of emerging technologies**

Mindful of the largely optimistic perspective on the future of work in the AHRI hopes and fears study, issues that relate to take up of emerging technologies will be looked at with great interest and may be an indication of the relative influence in decision making between the technologists who are informing business and government on the one hand, and the advice being offered by players looking at customers and workers, on the other.

In a micro case, the matter of facial recognition is interesting. Though humans are good at facial recognition, computers are now arguably more precise and reliable than humans in recalling and recognizing faces, and they are less costly than humans.

Setting aside some sobering stories of face recognition technology having the capacity to empower a surveillance state, there is a prominent poster used for advertising in the windows of some Bank of Queensland branches, one in the Melbourne central district.

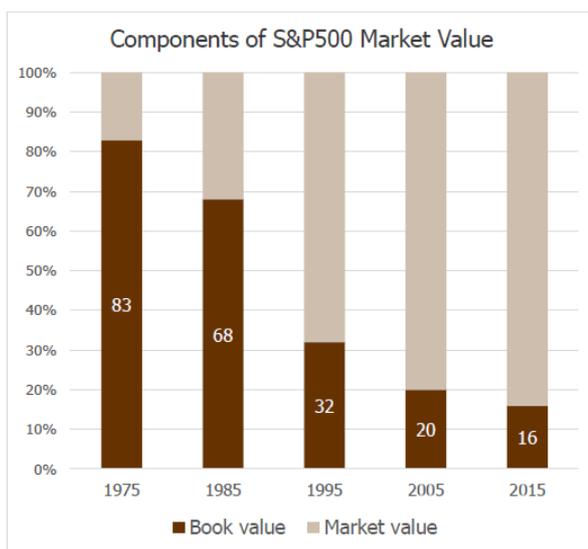
The poster simply says to passers-by: "We call our face recognition technology 'Staff'".

It appears that the leaders of that branch decided that the business needs to be doing what its customers want it to do, regardless of the potential for time-saving economic efficiencies provided by technological solutions such as face recognition. Unless businesses are monopolies, the belief is that their customers will go elsewhere if they don't like the way the business deals with them, and the bank has decided its customers like dealing with people rather than bots with respect to face-to-face recognition.

Today's corporate giants can become tomorrow's dinosaurs if enough customers walk with their feet, as we have seen in the transport and publishing industries, and the potential is there in banking as evidenced by the debate that has preceded the forthcoming financial services royal commission.

### Organisation value and the influence of human capital

At the macro level, the growing market value of what are sometimes called the 'hidden capitals', in comparison to the traditional financial capital of organisations, is worthy of note as illustrated in this graph:



Source: Ocean Tomo

The graph shows the indices by which the market value of an organization is measured over a 40 year time span, indicating the components of value have changed markedly from 1975 to 2015, according to the S&P 500 index.

The financial capital (or book value) in 1975 amounted to 83% of total value, which by 2015 represented a mere 16%, as the value of intangibles, such as intellectual property, social and relationship capital, brand, and human capital, have increased accordingly.

As more and more investors are wanting to better understand these 'hidden capitals' when assessing organisation value, the human capital factor enjoys greater potential than it previously had to influence the decision making in businesses, including business decisions related to automating or not automating the workforce and the related impacts on customers and the wider society.

## **Matters for action by government**

I believe each of the matters covered in this submission are of interest to government in the sense that they are likely to affect the daily lives of voting Australian citizens in the present and the future. That said, there are two matters on which government can act on directly and immediately. I refer to issues around redeployment and the gig economy.

### **Future fear 1: Lags in reskilling and redeployment**

While the [AHRI survey respondents](#) referenced at the outset of this submission were inconclusive about whether robotics and artificial intelligence will create more jobs than they replace (see Table 37 of the survey report), there was much greater certainty that there will be a lag in the redeployment of displaced workers with almost 70% agreement on the point (see Table 39).

A role for governments might be to look at the policy settings with respect to reskilling support for displaced workers. For example, government might consider amending its funding models for workers who need to make a career change. At present, a worker who may have already received funding for a level IV qualification and who needs to 'start from scratch' to reskill, cannot under the current system get automatic funding support to pursue study at level IV or lower.

It may well be that in the future workforce, jobs cannot be saved. A solution to that eventuality would be to shift the focus from jobs to skills, and particularly to people skills that support agility and adaptability. PwC

put the issue succinctly in its 2017 report on [Workforce of the Future: the competing forces shaping 2030](#): “Organisations can’t protect jobs which are made redundant by technology - but have a responsibility to their people. Nurture agility, adaptability and re-skilling.”

## **Future fear 2: The gig economy**

The gig economy is sometimes spoken about by business leaders and government officials as one of the wonders of the future workforce, and there is little doubt that the shifts in the economy may prompt more budding entrepreneurs than has previously been the case. That said [AHRI’s survey](#) found that one of the future fears of respondents relates to the gig economy as an outcome of increasingly automated work that in turn will affect workplaces and the makeup of the workforce (see Table 40).

The gig economy fears relate pointedly to negative workforce impacts on performance, customer service, culture and ethical behaviour.

Since the pathological corporate behaviours that revealed themselves leading up to and contributing to the global financial crisis of 2008, these four attributes when measuring organisational value are regarded as critical to both profitability and sustainability.

With that in mind, policy makers in business and law makers in government may well be advised to turn their minds to the potential impacts of a gig economy on the nature of work and workplaces, and the potential impacts on service expectations of consumers.

In addition, those drafting policy might be mindful of the wider social consequences of a growing workforce in a gig economy that may not enjoy the benefits that employees have come to expect with regard to relative security of employment, access to benefits such as paid leave, and the potential to qualify for loans and mortgages.



Lyn Goodear  
Chief Executive Officer