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Megatrends and Australia's future: Older and wiser?

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Introduction

The world is more interconnected than ever before.[1] Complex and often non-linear linkages are driving rapid changes across sectors and systems globally. Events happening in one part of the world can have fast and far-reaching consequences a long way from ground zero. Figuring out what factors are driving these changes is not easy, nor is predicting where the next change will occur.

One way to make some sense of it all is through the identification of megatrends. Megatrends are major shifts in environmental, social and economic conditions occurring at the intersection of many trends. Megatrends have the potential to irreversibly change the way we live and challenge the models we use to organise our societies.

A range of authors and organisations around the world have undertaken studies to identify megatrends. While the names and classifications of megatrends can differ, common themes have emerged. Based on a review of available literature, this chapter synthesises some of the major shifts occurring. Five categories are outlined, each with the potential to significantly influence Australia's future:

1. Economics: a shift towards emerging-market economies.
2. Climate change – both mitigation and adaptation.
3. Resource security: reconciling resource consumption and ecosystem health.
4. Virtual connectivity: the acceleration of global networking.
5. Demographics: population growth, ageing and urbanisation.

The implications of these megatrends are then explored in the context of Australia's future workforce, with a particular focus on demographic changes (population growth, ageing and urbanisation).

Economics: a shift towards emerging-market economies

One of the most common megatrends is the major transformation currently taking place in the global economy as the centre of gravity shifts towards emerging-market economies. It is anticipated that, in the next decade, these economies will become powerful economic actors in their own right, with Asia the centre of global economic activity.[2] Whether China will replace the United States (US) as the strongest economy by 2050 is subject to conjecture. Some authors[3] suggest that China will replace the US as the US experiences stagnation. Other authors, like Friedman[4], suggest this won't be the case, instead foreseeing stagnation in China and a US resurgence.

In terms of developed versus developing country economies, the US National Intelligence Council[5] foresees that the US, European and Japanese share of global income will fall from 56 per cent today to 'well under half' by 2030. While the West won't necessarily get poorer, economic growth will be affected by demographic change and high per capita income.[6] Middle classes in the developing world are poised to expand substantially in both absolute numbers and the percentage of the population that can claim middle-class status during the next 15 to 20 years. This is related to the acceleration of individual empowerment, and linked to poverty reduction, greater educational attainment, widespread use of new communications and manufacturing technologies, and healthcare advances.[7]

Climate change – both mitigation and adaptation

The Intergovernmental Panel on Climate Change projects an increase of global mean surface temperature of 1.1°C to 3.1°C by the end of the 21st century (relative to 1986–2005). This is the result of their intermediate scenarios (versus their 'stringent mitigation' or 'very high greenhouse gas emissions' scenarios). In many regions, this means heat waves will occur more often and last longer, and extreme precipitation events will become more intense and frequent. Occasional cold winter extremes will continue to occur.[8]

From a geopolitical point of view, shifts in monsoonal rainfall in India and the rest of Asia, or the increased frequency and severity of natural disasters, would be likely to result in greater geopolitical instability and tension around the globe, especially in fragile states.[9] In Australia, future winter rainfall is likely to be lower across the entire South East of the country while the incidence of catastrophic fire weather days will significantly increase, with future mean annual runoff also decreasing by an average of eight per cent.[10] The number and value of built assets exposed to sea level rise is also expected to increase exponentially.[11]

Resource security: reconciling resource consumption and ecosystem health

The challenge of meeting growing demand for natural resources (for example, food, water, energy) while maintaining ecosystem health and services in a finite world is not a new one. However, it is likely to become increasingly difficult as resource insecurity grows. Given current conditions, the world could face:

- A 40 per cent shortfall between global freshwater demand and supply by 2030[12];
- An energy production shortfall of around 400 EJ/a in 2050 – equivalent to the size of the whole industry in 2000[13];
- Rapid expansion in global cropland area triggered by higher population and higher demand for food[14];
- A further 10 per cent loss of all global terrestrial biodiversity by 2050[15]; and
- Unrest within fragile states in Africa and the Middle East (and possibly China and India) due to resource shortages manifesting as higher prices for basic necessities.[16]

Consistent with economic growth forecasts, the fastest growth in agricultural exports are expected to come from emerging exporters in Eastern Europe, Central Asia and Latin American countries.[17] The real value of Australian agricultural exports is expected to be 140 per cent higher in 2050 than in 2007, with the largest increases in real value expected for beef, wheat, milk and sheep meat.[18] However, these figures are based on the assumption that agro-environmental conditions are maintained and climate change will not cause large-scale disruption. In reality, longer term food security for Australia and its trade partners is likely to be threatened by climate impacts, lack of planning controls over urban development and mining on productive land, shortages of skilled labour and underinvestment in agricultural research and development.[19]

Despite potential resource scarcity, some authors suggest that modern lifestyles could be maintained at affordable prices because of our technological base.[20] Hajkowicz et al. foresee a shift in consumption patterns and behaviour driven by rising consumer, societal, demographic and cultural demand for experiences over products and the

rising importance of social relationships.[21] Such 'experience-based consumption' could become a means of maintaining economic growth and delivering quality of life while conserving the natural world's limited resources. On another front, the Organisation for Economic Co-operation and Development (OECD) foresees a bio-economy emerging by 2030 from the invention, development, production and use of biological products and processes. They estimate this could contribute up to 2.7 per cent of GDP in OECD countries.[22]

Virtual connectivity: the acceleration of global networking

The last 20 years has seen the rise of virtual networks of unimaginable scale and complexity. Money, goods, data, and people now cross borders in huge volumes.[23] This online connectivity and networking is only going to accelerate. In 2012, there were five billion devices connected to the internet, including computers, phones, music devices, vehicles and appliances. This will grow to 22 billion by 2020.[24] All surfaces have the potential to become an interface point with this networked technology. Some even predict that devices and information and communications technology (ICT) systems could be controlled directly from the brain.[25] In this networked world, learning could be democratised by near-universal access to virtual universities, while collective intelligence could supplement individual intelligence.[26]

Increased online engagement creates economic opportunity and opportunities for greater social interaction. It also facilitates increased levels of malicious activity, from organised crime to state-sponsored espionage.[27] As traditional legal systems are updated to reflect the new virtual reality, the future may see cyber police forces in place to detect, apprehend and penalise online criminals, with a 'cyber judicial system' in place to convict criminals online.[28]

Demographics: population growth, ageing and urbanisation

Population growth

World population is expected to increase from the current 7.2 billion people to 9.6 billion in 2050 and 10.9 billion in 2100.[29] Nearly all future population growth will occur in developing countries, while developed countries as a whole will experience little or no population growth in this century, and any growth that does occur will largely be driven by immigration from less developed countries.[30] This means that the relative size of different countries will shift. In 2050, there will be almost as many people in Nigeria as in the US, and Ethiopia will have twice as many people as projected in the United Kingdom or Germany.[31]

In Australia, population growth is projected to slow, but total population is still projected to reach 31 million people by 2033 and 42 million people by 2060.[32] This is compared with Australia's resident population in December 2013 of 23.3 million. This growth is a function of a combination of natural increase (total births minus total deaths) and net overseas migration. The total fertility rate in Australia is currently 1.9 babies per woman (around half what it was in the early 1960s) and life expectancy is steadily increasing (refer to Table 1).

Ageing

In Australia, like many countries in the world, our population is ageing. If fertility, net overseas migration and life expectancy rates were to continue in line with recent trends, the proportion of the population aged 65 years and over can be expected to increase from 14 per cent in 2013 to 23 per cent in 2061.[33] With population ageing, the working age population (aged 15 to 64) will decline from 67 per cent in 2013 to 63 per cent in 2033 and 61 per cent in 2061. This translates to less working aged people per aged person. To date, people aged over 65 years have had relatively low labour force participation rates.

The number and proportion of Australians aged 85 and over will also grow rapidly. It is projected that 4.9 per cent of the population, or nearly two million Australians, will be aged 85 and over, compared with less than one per cent or 80,000 people in 1974–75.[34] This means a potential increase in the number of users of government services such as healthcare, aged care, and public housing.[35] On the flip side, ageing is creating new economic opportunities and consumer markets across the world. Over 60s spent $8 trillion in 2010, and by 2020, they will spend $15 trillion. In Australia, 50 to 69-year olds alone hold more than 40 per cent of the nation's wealth.[36]

Table 1 shows what Australia's population (age and structure) would look like in 2033 and 2061 compared with today. Note that the Australian Bureau of Statistics (ABS) estimates of current and future life expectancy are significantly lower than estimates in the 2015 Intergenerational Report (IGR) because they use a different method. The IGR uses a 'cohort method' that gives a male life expectancy in 2015 as 91.5 years, growing to 95.1 years in 2055.[37]

TABLE 1
AUSTRALIAN DEMOGRAPHIC STATISTICS AND POPULATION PROJECTIONS[38]

	2013	2033	2061
Total population	23.3 million	31 million	42 million
Population aged over 65	14 per cent	19 per cent	23 per cent
Working age population (aged 15 to 64)	67 per cent	63 per cent	61 per cent
Population aged less than 15	19 per cent	18 per cent	17 per cent
Dependency ratio (dependents for every 100 workers)	50 per cent	59 per cent	65 per cent
Fertility rate (births per woman)	1.9	1.8	1.8
Net overseas migration (migrants per year)	240,000	240,000	240,000
Life expectancy	79.9 years for men 84.3 years for women		85.2 years for men 88.3 years for women

The forces that have led to ageing in Australia – higher life expectancy and lower fertility rates – are common among many countries. All of Australia's major trading partners will go through a major demographic transformation to older societies, including the European Union, Japan and China.[39] Working populations are projected to contract dramatically in developed countries, including Japan (–37 per cent) and Russia (–31 per cent), and also in the Eurozone (–29 per cent).[40] In 2012, only Japan and Germany had matured beyond a median age of 45 years. By 2030, most European countries,

South Korea and Taiwan will have entered the post-mature age category.[41] In 2060, China's share of people aged 65 or more years is projected to be over 28 per cent, or around five percentage points greater than Australia in that year.[42]

Urbanisation

In 1800, only two per cent of the world's population lived in cities – now it is 50 per cent. One-and-a-half million people are added to this total every week.[43] It is predicted that by 2050, three-quarters of the world's nine billion people will live in cities.[44] Most of the increase in urban populations will be in middle- and lower-income countries.[45] Larger, urban populations will require expanded security and law enforcement due to the increased potential for communal violence, public disorder or social unrest. Urban areas can also be vulnerable due to their high reliance on critical infrastructure. Communicable diseases can spread more quickly in densely populated areas, increasing the risk of global pandemics. More generally, cities are connected systemically through physical and informational networks where events in one location can be rapidly transmitted globally in unexpected trajectories.[47] Populations are agglomerating along coastal areas at risk of rising sea levels, extreme weather events, earthquakes and tsunamis. Urban flooding has already become the leading form of disaster in the world, and the United Nations (UN) forecasts that the number of people in large cities exposed to cyclonic winds, earthquakes and flooding will more than double in the first half of this century.[48]

Australia has long been a strongly urbanised country with population highly concentrated around a narrow coastal belt. More than 70 per cent of the population live in major cities while the majority of the rest reside in inner regional areas. This urbanisation is continuing. Within Australia, areas of population growth and decline in the past are likely to be reflected in future trends. From 2001 to 2011, major cities experienced the greatest proportional increase in population relative to other areas. This included older built-up areas, encouraged by both planning policy and changing preferences. Strong net migration and moderate natural increases will continue to drive population growth in major cities.

Implications and policy considerations

Spatial and skill mismatches

Employment opportunities shifting to other sectors and locations can have negative outcomes for individuals and regions, especially if there are no jobs available that match existing skills and experience. This is an urban as well as a rural issue. In our major cities, there is a growing spatial divide between where jobs are (inner city) and the outer suburbs where people can afford to live.[49]

To see how much the working world can change in a few decades, we only have to look to the recent past. In 1966, 46 per cent of all employed people in Australia worked in production industries such as manufacturing.[50] In 2011, the most common industry was the healthcare and social assistance industry, and the most common occupations were professionals, clerical and administrative workers. The proportion of people working in production industries has now halved. Almost all employment growth has been in the service sector, the workforce of which has more than tripled from 2.6 million to 8.7 million from 1966 to 2011.[51] However, the actual number of people working in production industries has not declined. It has remained steady at

between 2.2 million and 2.7 million positions. And job losses over the last decade in manufacturing; agriculture, forestry and fishing; and information, media and telecommunications have been offset by more than a million job gains in higher paying industries. The challenge is that the jobs available don't always match the skills or location of workers, meaning painful impacts for many individuals and regions.

In 2025, Australia is expected to have almost two million new jobs compared with today, while 65 to 75 per cent of people employed will hold a post-school qualification.[52] The Department of Employment forecasted that over the five years to the end of 2018, one in three new jobs will be for professionals.[53] However, there is the question of matching skills with demand. Having a qualification doesn't guarantee a job. This is evidenced today where there is an oversupply of graduates in some disciplines and a deficit in others.

There is a risk of mismatch not only for employment, but also for the provision of services. Looking ahead, the geographical distribution of Australians aged 65 and over and 80 and over in 2021 and 2031 will be quite different to that of today. Currently, major cities, remote and very remote areas have a greater proportion of young adults while inner and outer regional areas possess above average proportions in the middle adult and elderly ages.[54] Remote and regional areas are both likely to experience population ageing in the future as low natural increases and low migration reduce their proportion of young people. This means that the location of aged care infrastructure may end up being mismatched with where older Australians live.[55]

The IGR projects that the proportion of Australians aged over 65 participating in the workforce will increase from 12.9 per cent in 2014–15 to 17.3 per cent in 2054–55.[56] This assumes that they can find jobs. As regional and remote Australia ages, many older Australians will be living in areas with potentially fewer jobs and higher unemployment rates. Today, unemployed older workers can find it more difficult to find work because their skills do not match contemporary employer needs or due to disability or discrimination.[57] They face higher rates of long-term unemployment. On average, unemployed people aged 55 and over last worked in a full-time job 67 weeks ago, compared with 38 weeks for people aged 15–54.[58] While financial disincentives related to tax and superannuation can be addressed through policy measures, shifts in the attitudes and expectations of employers and the labour force will be as important.

This is not to forget that, in Australia, there is a higher proportion of young people (15–24 years) who are unemployed than those aged 55 years or over. While the current national unemployment rate is 6.3 per cent, for 15 to 24-year olds, the unemployment rate was at 14 per cent in January 2015. For 15-to-19-year olds, the unemployment rate is over 20 per cent – a return to levels not seen since the 1990s after a period of recession. Youth unemployment is even higher than the national average in many regional and remote areas.[59] Again, job demand doesn't match supply. And today's young will be tomorrow's old.

Crowded cities

By 2020, the cost of urban congestion in Australia is expected to more than double to $20.4 billion. By 2030, Australian cities will need to cope with the added pressure of 30 per cent more people, with increasing city density placing more pressure on infrastructure, the environment and the social fabric of the city. City leaders will be presented with difficult choices if growing cities are to remain liveable cities.[60] As urban populations grow, substantial improvements in urban governance capacities will be needed to make cities resilient against complex and interconnected risks.[61]

As populations decline in regional areas, and traffic congestion and unaffordable housing increase in urban areas, governments will no doubt be pressured to do more to promote population and economic growth in regional areas. However, policy measures attempting to increase population growth in regional areas will struggle against demographic forces of decline.[62] For those wanting to live and work in major cities, public transport and new transport infrastructure is important, but housing affordability will also need to be addressed. At its most basic, this will require more streamlined planning and zoning rules to enable the building of new homes in inner-city suburbs.[63]

As urban populations age, new approaches will be needed to ensure housing and urban developments enable rather than restrict workforce participation of our ageing population.[64] Urban planning will need to create accessible local environments in which older people can get out and about. Improving accessibility can include relatively simple measures like reliable transport options for those with mobility problems, well-maintained footpaths without trip hazards, low kerbs with wheel chair ramps, places to sit and rest, and safe and well-lit streets with a good police presence.[65]

Global competition for job opportunities

> "More than ever, governments need to distinguish between jobs lost to other countries and jobs lost to the past."[66]

As population growth slows and people age, workforce shortages can occur. Yet while some developed countries are facing shortages, others are facing a surplus. While Australia may be seeking to lift workforce participation in the face of worker shortages, globally, employment is not expanding fast enough to keep up with the growing labour force.[67] Almost 202 million people were unemployed in 2013 around the world, an increase of almost five million from the year before. The bulk of the increase in global unemployment is in the East Asia and South Asia regions, which together represent more than 45 per cent of additional jobseekers, followed by Sub-Saharan Africa and Europe. If current trends continue, global unemployment is set to gradually worsen, reaching more than 215 million jobseekers by 2018. During this period, it is estimated that around 40 million net new jobs will be created every year, which is short of the 42.6 million people who will enter the labour market each year looking for work. Meanwhile, the global youth unemployment rate is almost three times as high as the adult unemployment rate. In certain countries, almost one-quarter of young people aged 15 to 29 are now neither in employment, nor in education or training.[68]

Virtualisation of the workforce

> "No one knows for certain which industries will generate the jobs of the future. But we do know we want them here in America."[69]

Jobs and organisations are likely to become increasingly globalised and fluid as people move from project to project, from areas of workforce surplus to workforce shortage. This global diffusion of job opportunities will be aided by the rise of virtual networks. In 2030, technology will be pervasive and the global labour market highly competitive.[70] This proliferation of technology and our increased global interconnectedness will also make societies and business processes more vulnerable. Within this context, companies will be forced to remodel their businesses to enable further flexibility and virtualisation of the workforce. This new business environment could see companies play a role as 'network orchestrators' rather than traditional employers.[71]

A new world of work

Everyone, not just employers, needs to be thinking now about where and how the way people work in the future will shift. If employees are scattered across networks and couches, working at all hours and in many locations, what are the implications for occupational health and safety, cybersecurity and data confidentiality? Having virtualised teams and networks would require new capacities in leadership and team management, as well as new ways of managing performance and motivating staff.[72] Are we prepared for this?

And what are the industrial relations implications if the traditional working week – or even a traditional job – becomes a thing of the past? As businesses shrink their workforces to a minimum using flexibly employed external service providers, this may mean a much smaller group of employees will be able to enjoy long-term contracts. The Oxford Martin Commission for Future Generations suggests that "economic models and political systems built upon a desire for full employment may require revision".[73] They cite evidence of movement "towards a more fluid employment relationship", whereby "people are holding portfolios of activities, including paid employment, unpaid employment such as internships or volunteering, self-employment, and caring for children or the elderly".

Increased employment flexibility can translate into the reduced security of workers. While the highly skilled will push for a better work-life balance, many others will experience increasing insecurity of employment and income.[74] For some, this is already the case. Globally, 'vulnerable employment' (including self-employment) accounts for almost 48 per cent of total employment. Persons in vulnerable employment are more likely than wage and salaried workers to have limited or no access to social security or secure income. The number of people in vulnerable employment expanded by around one per cent in 2013, a rate of growth five times higher than it was during the years prior to the Global Financial Crisis.[75]

At the time of writing, the Productivity Commission was undertaking an inquiry into Australia's 'workplace relations framework'. Its scope of reference includes patterns of engagement in the labour market and the ability for employers to flexibly manage and engage with their employees. In *Issues Paper 1*, it recognises that:[76]

- Long-run shifts in labour markets, institutions, the nature of the economy and social security systems may provide an impetus for further change;
- There are risks to less skilled labour posed by technological change and the increasingly tradable outputs of the service sector;
- Traditional notions of the workplace may change for some types of occupation because of technological advances that allow people to work remotely; and
- Concerns exist about the lack of a safety net for workers not classified as employees, such as outworkers and contractors.

This is a start. But we need to take this thinking further. For example, much of the current thinking about innovation clusters and professional networking emphasises the importance of physical proximity, often in inner-city locations. But what if we all work remotely? Can innovation occur across geographical boundaries – beyond business precincts or hubs? What might the new patterns of business and collaboration be?

In examining creative industries in the outer-suburbs of Melbourne and Brisbane, Felton et al.[77] found that networks could thrive outside the dense 'proximity clusters' of the inner city, and were often less spatially dense than accepted wisdom would recognise. Might this be the case in other industries as well?

Conclusions

Australia is facing a range of megatrends that will change the way we live and work in coming years. We need to start thinking creatively about the opportunities and challenges on the horizon. This goes beyond debating minor reforms or making a few policy tweaks. The world is changing and with it our society, our economy, our democracy and the environment around us. How do we thrive in this brave new world? In a time of increasingly complex and interconnected systems, what skills do we need to navigate our way?

For those that learn how to thrive in an unpredictable and uncertain world, rapid change and complexity need not be a liability. They can be an advantage. We need to be proactive in building our capacity to make decisions for the long-term while having the ability to successful react and adapt in real time to curve balls thrown our way. We need organisations that can cope with complexity by being able to learn and adapt to changing circumstances. We need leaders with humility, willing to draw upon the emergent and self-organising nature of complex adaptive systems through empowering others and continuous re-calibration. This requires taking risks, experimentation, and accepting failures. We need governments that are willing to do all these things. And we need citizens that will encourage them doing so. We might be getting older, we can also get wiser. The 21st century is still young.

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