

National Economic Review 2015 – The Future of Jobs

Global Access Partners 6th Annual Growth Summit

Thursday, 17th — Friday, 18th September 2015

Legislative Assembly Chamber

Parliament House of NSW

FINAL REPORT

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Introduction

The Future of Jobs was discussed at *National Economic Review: Australia’s 6th Annual Growth Summit*, hosted by public policy institute Global Access Partners at NSW Parliament House on 17th and 18th September 2015.

The Summit considered recent trends shaping the domestic and international labour markets and the challenges and opportunities facing individuals, employers, education providers and policy makers. Speakers and delegates explored digital disruption and entrepreneurship, productivity and competitiveness, skill shortages and education, wider workforce participation and the changing nature of work, and suggested a number of strategies to improve Australian skills, growth and employment. They called for courageous decision making from politicians, businesses, investors and the public to grasp the opportunities which technological progress and economic development presents.

Held in the Legislative Assembly of NSW Parliament House, the Summit welcomed a select audience of federal and state politicians, business leaders, academics and social commentators. The programme included speeches by **the Hon. Anthony Roberts MP**, Minister for Industry, Resources and Energy, NSW Government, and **the Hon. Philip Ruddock MP**, Special Envoy for Citizenship and Community Engagement.

The international guest speaker was **Mr Stefan Kapferer**, Deputy Secretary-General of the Organisation for Economic Co-operation and Development (OECD).

The Hon. Scott Morrison MP, Minister for Social Services, wrote a letter of welcome to Summit delegates, in which he highlighted the Government’s commitment to building a stronger economy and providing the necessary support to encourage growth in employment.

Keynote presentations and blogs by Summit speakers and delegates are available at <http://openforum.com.au/future-of-jobs>.

As part of the Summit’s programme, delegates enjoyed a demonstration of projects created by **Young ICT Explorers**¹ – a programme developed by SAP Australia encouraging school students to study STEM².

About the GAP Annual Growth Summit Series

National Economic Review is an annual Summit designed to lead the debate on productivity, infrastructure, innovation, education, job creation and economic growth. Its parliamentary format encourages open and constructive dialogue and offers unique networking opportunities for its speakers, delegates and international guests. Each Summit’s theme is informed by the taskforces and stakeholder consultations run by GAP during the year. Previous Summits focused on Innovation (2010), Population (2011), Productivity (2012), Agriculture (2013) and Education (2014). The reports of proceedings can be reviewed at www.globalaccesspartners.org/think-tanks/growth-summit.

Summit Communique to the 2016 OECD Ministerial Meeting on Jobs Strategy

We, the attendees at Australia's 6th Annual Growth Summit, met on the 17th and 18th of September at the Legislative Assembly of NSW Parliament House in Sydney. The Summit was hosted by public policy and implementation institute Global Access Partners (GAP) and welcomed a select audience of federal and state politicians, business leaders, academics and social commentators to discuss the future of jobs. Topics included digital disruption and entrepreneurship, productivity and competitiveness, skill shortages and education, wider workforce participation and the changing nature of work.

We thank the Hon. Anthony Roberts, NSW Minister for Industry, Resources and Energy, for hosting the Summit, and its sponsors and supporters, including Chartered Accountants Australia & New Zealand, Cognizant Technology Solutions, Department of Education and Training, Department of Employment, Department of Social Services, Edith Cowan University and the ECU Emirates Centre of Aviation & Security Studies in Dubai, Herbert Smith Freehills and Hewlett Packard Enterprise. We congratulate the Summit's steering committee and GAP for their organisational expertise and the volunteers and staff responsible for its success.

We recognise that Australia faces a more uncertain economic future as the commodity boom begins to wane. Digitisation, technological disruption and intensifying international competition may threaten employment in existing industries and services, but it will also offer new avenues for growth, employment and prosperity. Australian policy should encourage innovation to bring value to consumers and reinvigorate the economy, rather than shield entrenched producer interests. Government, businesses and individuals should be courageous in their decision making and take the initiative to grasp the opportunities which technological progress and economic development presents. We should nurture a culture of experimentation and positive failure which supports, rather than damages, diminishes or punishes, entrepreneurs as they pursue innovations which will benefit us all.

International Perspectives

- I. Many OECD countries suffer high unemployment and a shortage of marketable skills. Although tertiary education has been greatly expanded, too few young people graduate in subjects relevant to the modern labour market, while vocational courses and apprenticeships have been neglected. Societies around the world are ageing, reducing the ratio of workers to dependents, and there will be increasing international competition for skilled migrants. The relationship between GDP and employment is eroding as automation expands to affect – if not destroy – half the jobs done today. The specialisation of labour which has characterised recorded history will continue to intensify, with growing disparities of income. Technological advance has always created more jobs in the long term than it initially destroys, but the increasing pace of change may see a significant interregnum in which unemployment increases unless policies and attitudes are changed.

Services

2. The service sector has lagged behind manufacturing in improving productivity in recent decades, but the rapid development of key enabling technologies will see many professional services and back office functions digitised, with major losses of jobs. Technologically driven improvements in service productivity are removing the need for 'middle men' in companies, just as they are disintermediating relationships between consumers and producers. The retention of a strong manufacturing sector strengthens the service industries which are often touted as its replacement.

Digitisation

3. The digitisation and automation of many commercial activities by increasingly sophisticated computer algorithms will see a host of professional and administrative jobs disappear in the near future, just as manufacturing jobs were lost to low-cost Asian producers in previous decades. While the net positive results of Schumpeterian 'creative destruction' will probably persist into the future, the quickening pace and broader impacts of technological change may create mismatches between the skills required by the employers and those available in the labour market. Australia and other developed countries may suffer both unemployment and skill shortages, causing both social and economic difficulties. However, while routine, and many non-routine, activities in sales and administration will be automated, jobs which require emotional responses, such as those in health and education, will remain in human hands. Demographic change may see a million workers employed in aged care by 2055.

Technological Disruption

4. Large, long-established companies face an ever-intensifying struggle to stay relevant, as digitisation decimates barriers to market entry and traditional business models are disrupted by new entrants, technology and techniques. The internet and social media furnish consumers with real-time information and market power, removing the need for middle men and gatekeepers. 3D printing may soon remove the need for commercial manufacturers of many goods themselves. Innovations such as driverless cars are set to change society – and leave large numbers of people, whose jobs depend on driving, looking for alternative work. However, the current impact of digitisation and the informal economy can be over-emphasised, with the number of Australians working outside formal employment structures increasing by just 1% per annum over the last decade. While internships, contingent workers, zero hours contracts and the 'gig economy' are increasingly prevalent around the world, they do not yet pose a public policy issue in Australia. Rather than pauperise vast swathes of the population, technology could eventually create an 'era of abundance' in which people will contribute to society in many ways beyond the world of work.

Productivity

5. Domestic productivity growth has remained poor over the last decade, despite the widespread adoption of ICT and other modern technology. Productivity improvements should be pursued as beneficial in their own right, regardless of debates around the extent and impact of demographic or digital change.

Comparative Economic Advantage

6. A nation's prosperity is a function of its economic complexity, and Australia's complexity remains relatively low. Australian companies serve mature markets, generate low productivity growth, and compete on price rather than quality. Increasing that complexity and developing sectors in which Australia enjoys a comparative advantage could compensate for a future decline in mineral exports to Asia. Tourism, international education, agri-business, gas and wealth management have particular potential and, when aggregated, could match the mining industry in size.

Demographic Change

7. While short-term disruptions may increase unemployment, Australia and much of the developed world face a long-term shortage of suitably skilled workers as the population ages and the ratio of working people to dependents declines. The ratio of workers to retirees has fallen from 7.3 in 1975 to 4.5 today and may be as low as 2.7 in 2055. If society and policy do not adjust, this will see fewer people working, less income tax collected and higher health, pension and aged care costs for the government.

Non-Traditional Employment

8. Many companies will take advantage of digitisation and global connectivity and reduce costs where they can by minimising their numbers of formal employees and sub-contracting work to casual workers around the globe. Although the impact of the 'gig' or 'sharing' economy can be overstated at present, it may have a growing influence on employment, threatening traditional career paths and increasing insecurity for some individuals, while offering new opportunities for others currently marginalised from the traditional, full-time labour market.

Innovation

9. Although Australia is a heavy consumer of technology, it produces little technology itself. It is an inventive nation which spends significant sums on research, yet has a poor record on commercialising these inventions, due to poor collaboration between industry and universities, a lack of venture capital for entrepreneurs, an intolerance of failure, and a dearth of appropriately skilled and experienced personnel. Innovation requires the successful commercialisation of inventions and must be improved if Australia is to create 1% of the world's intellectual capital, and thus retain its current 1% share of global GDP.

Workplace Reform and Flexibility

10. Australia should begin to prepare for the workforce challenges which demographic change will generate by 2055. This will require greater economic participation by the over 65s, the retraining of retrenched workers in their 40s and 50s and increased female participation in the workforce enabled by more flexible working arrangements. More flexible working arrangements should encourage start-ups and smaller companies to launch and expand, but workers' rights should remain protected to guard against exploitation. Businesses will be forced to abandon their reluctance to employ older workers, as the supply of younger workers declines. Other factors which inhibit labour mobility include the high cost of metropolitan housing, incompatible local trading regulations, and a lack of ongoing education after leaving school or university.

Public Policy

11. Public policy should encourage rapid resource reallocation in a dynamic economy, rather than allow vested commercial interests to stymie consumer-friendly competition and growth. Consumer preferences in a free economy are the main driver of change, and while jobs may disappear in the short term in the pursuit of higher productivity, impeding modernisation, rationalisation and productivity growth can only damage national income in the long term. Red tape costs the Australian economy \$250 billion every year. While there is obviously a need for regulation in the public interest, more attention should be paid to its cumulative effect, no matter how well-intentioned each individual measure may be.

Government Transfers

12. The most important factor hampering Australian productivity is not unduly high wages or over-generous worker protections, but the lack of management and accountability regarding government transfers of funds. Virtually no effort is given to tracking the vast sums of money which the public purse transfers. Nor are there serious investigations regarding their true impact on society and the economy. This, in turn, means there is no hard data by which to judge where such funds should be allocated in the future for best effect. Rigorous efforts should therefore be made to 'follow the money trail' from the moment it is released by government agencies.

Education

13. Although Australia has high rates of tertiary participation, there is a shortage of graduates with the STEM skills required in cutting-edge firms. Australian universities produce a surfeit of lawyers, but just 3,000 computer science graduates every year. Education should furnish young people with the skills required to identify and solve problems and the interpersonal skills required in productive teams as well as competence in their domain. There is no trade-off between success in traditional subjects and creativity in education. Contrary to popular belief, countries tend to excel at both or neither.

Leadership and Culture

14. Successful tech companies use novel means to attract, retain and reward skilled workers in the face of intense international competition for their services. Australian society has become ever more risk averse, but courage is needed from politicians, businesses, investors and individuals alike to embrace, rather than fear, the future. Few predictions of future trends bear any relation to reality, but economic and technological disruption is already an established trend. Although measures should be taken to ease these transitions, Australia has prevailed in the face of greater challenges before, and if the right decisions are made, it remains well-placed to flourish in the 21st century as it has before.

Key Recommendations for Change

International Perspectives

- Measures to promote skills, flexibility and modernisation should be adopted across the OECD.
- In common with other nations, Australia should pursue domestic structural reforms, international free trade agreements, market deregulation and labour flexibility to maximise productivity and job opportunities in the future.
- While productivity improvements may reduce employment in the short term, they will increase the number of high-quality sustainable jobs over the long term.

Economic Complexity

- Australia must encourage higher levels of economic complexity by recognising the importance of innovation and manufacturing, as well as primary and service industries to the national economy.
- Industry, education and innovation policies should increase national economic complexity and empower the absorption and deployment of new techniques and activities.
- Policy should encourage firms which generate world-class increases in productivity, as only these firms can create stable, high-quality jobs.
- Australia must 'manage for change' in the future to seize its opportunities, rather than merely 'manage change' after the event to ameliorate its most damaging impacts.

Comparative Economic Advantage

- Australia should seek to optimise the sectors in which it enjoys an international comparative advantage.
- Tourism, international education, agri-business, gas and wealth management are potential areas of growth which could, when aggregated, compensate for the waning of the recent mining boom.

Demographic Change and Workplace Flexibility

- More flexible working arrangements, including mobile and remote working, should encourage a wider range of older, female, disabled and minority Australians to enter or remain in employment.
- Rigidities in the workplace and labour market should be addressed by both government policy and business practice to encourage more diverse recruitment and the agile deployment of resources required by fast-changing market conditions.
- Legislation regarding minimum wages, penalty rates, payroll taxes, FBT and unfair dismissal should be investigated to encourage companies to recruit more workers with less fear of change or liability. However, workers should remain protected from exploitation as the nation's economy exists to serve its people, rather than vice versa.

- Australian businesses should encourage collaboration and maintain a mindset of ongoing reskilling, rather than relying on government or individual initiatives to satisfy their own demand for skilled and agile labour.
- Remote working should be embraced to encourage wider participation, and health and safety liability should be revisited to encourage its adoption.
- High-achieving millennials are attracted by an organisation's vision and values, rather than perks packages. Employees should be welcomed to the organisation, given meaningful activities and see their contributions valued in more than monetary terms. Successful companies must strive to improve the working environment in a systematic way to improve worker satisfaction and commitment to boost its own productivity. Surveys of workers can highlight problem areas to be addressed.
- Organisations should make a conscious effort to harness the collective wisdom of their employees to maximise the value of their greatest asset.

Public Policy

- Governments should ensure that the basic infrastructure of transport, energy and water and services providing healthcare, education and security are well maintained, to allow people and prosperity to flourish.
- Governments' accountability frameworks for public money transfers and what public spending achieves should be improved.
- Businesses and industries should become more self-reliant in addressing and solving the problems they face, rather than relying on government action.
- Regulation conceived in the past should not impede new digital solutions, nor be used by vested interests to protect themselves against new entrants, although the protection of the public must be maintained.
- Regulation should be reviewed, and old or obsolete measures removed, more assiduously. Companies should also review the growing numbers of workers they employ to ensure company compliance with self-imposed internal procedures.
- Governments should not place unduly heavy 'bets' on particular policies or industries, given today's fast-changing social, economic and technological environment and the failure of such bets in the past.

Education

- Education should emphasise the problem-solving ability and interpersonal skills required by both highly paid performers and lowly paid support workers in the new economy, as well as subject competence.
- The teaching of STEM subjects should be encouraged at all stages of education, from primary school to universities and beyond. The national school curriculum should emphasise computational and systems thinking, problem solving and adaptability and basic competence, as well as STEM subjects. Far from inhibiting it, the traditional disciplines of numeracy and literacy are the bedrock of creativity.
- While skilled immigration can address such shortages in the short term, Australia must train more people of every age, gender and background in the skills required today. Girls should be encouraged to study STEM subjects and computer science to address the poor rates of female participation and shortage of suitable graduates in these sectors.

- Industry, government and individuals must invest time and resources into constant retraining and upskilling to maximise capacity, agility and employability in a fast-evolving economic and technological environment.
- Rates of youth unemployment are lower in OECD countries with a well-established, work-based vocational training system. Australia should ensure its vocational education remains practical and employment-oriented, to ensure the availability of tradesmen and similar professionals. Businesses must offer more work experience places to school and university students.

Commercialising Technology

- Cooperation between industry and universities, often mediated by research institutes, plays a vital role in Germany's success and should be improved in Australia. Collaboration between industry and universities should be enhanced to enable the successful and mutually beneficial commercialisation of Australian inventiveness and publicly funded research.
- Australia must produce its own businesses to digitise others, or face its own businesses being digitised from abroad. It should aim to produce 1% of the world's technological advances if it wishes to maintain its prosperity and 1% share of global GDP.

Leadership, Entrepreneurship and Culture

- Australia should pursue excellence in education and innovation with the same vigour, and international success, it devotes to sport. Australia must embrace a 'have a go' culture of risk taking and endeavour, rather than the 'fair go' culture of entitlement and mutual mediocrity.
- Australia should be more tolerant of failure, as entrepreneurs and inventors may stumble several times before they succeed. The stigma and restrictions surrounding individual bankruptcy should be eased to reduce the penalties for business failure, while US-style 'Chapter 11' legislation would allow Australian businesses to trade their way out of difficulties, rather than being closed by administrators.
- Enlightened and positive leadership across business, education and government is required to inspire a positive embrace of inevitable global change. New decentralised leadership styles must be adopted in new companies, with managers balancing creative chaos and productive order to achieve the best results. Organisations which offer their employees opportunities to develop domain mastery, autonomy and purpose are most likely to succeed.
- Politicians should offer clear national goals for Australia to achieve through market mechanisms. The next GAP Summit in 2016 will discuss the implementation of a Vision for Australia.

Outcomes & Next Steps

Global Access Partners will coordinate a number of projects to ensure the Summit's long-term impact on public policy. These include facilitated stakeholder engagement, online discussions through Open Forum and further consultations and research.

In 2016, the GAP programme will include the following advisory groups and taskforces to further explore the ideas raised at the Summit and work on the implementation of its key recommendations:

- **GAP Advisory on Leadership in Innovation**

GAP will facilitate a two-year multidisciplinary advisory to develop policy ideas and initiatives with a focus on innovation. The Advisory will oversee and coordinate a number of taskforces, including “*Sydney as a Regional Innovation Hub*” Taskforce, in partnership with PricewaterhouseCoopers; “*Courage: Innovation, Risk and Outcomes in the Public Service*” Taskforce, in partnership with the Department of Employment; and GAP Taskforce on the Sharing Economy, in partnership with Insurance Australia Group. The taskforces will follow the principles of the ‘Second Track’ process and produce a comprehensive position paper from its deliberations.

- **GAP Taskforce on Leadership in Education**

This Taskforce was established in 2013 to address the challenges facing Australia's higher education sector and will continue its work into 2016. The Taskforce serves as an informal advisory body to the Department of Education, and its 26 members include vice-chancellors, leading academics, businesspeople and senior public servants. The group will oversee a number of new and ongoing projects, including “*Improving Career Advice Provision in Secondary Schools*” and the GAP Taskforce on Early Childhood Education.

- **GAP Taskforce on Productive Ageing**

Since its establishment in 2013, the GAP Taskforce on Productive Ageing identified a series of strategies and workplace improvements to help Australia's ageing population stay in the workforce for longer. Supported and funded by the NSW Department of Family and Community Services and the Federal Department of Social Services, this group will continue developing several practical projects to improve national productivity, workforce participation and economic outcomes for mature-age employees. It will also host a series of strategic roundtables ‘*Early Return to Work*’ to promote the practical potential of Prof Michael Nicholas' pioneering work with injured employees in NSW hospitals.

- **GAP Taskforce on Government Health Procurement**

In early 2015, GAP established a cross-sectoral multidisciplinary taskforce to analyse Australia's public health procurement and offer practical proposals for reform. The group investigated the impact of current procurement processes on the age and reliability of medical equipment, waste in the system, service levels, innovation, competition, and quality and safety of care. It will continue its operation in 2016 to develop an alternative model of procurement, to be tested through a state government pilot.

- **2016 A Vision for Australia Summit**

The 2016 Summit will discuss A Vision for Australia in the context of **Innovation** and how to encourage Australia to embrace innovation in every sphere to prosper from accelerating technological and economic change. Topics will include productivity and economic growth, employment and job creation, demographic trends, health and education, technological innovation, ecology and sustainability. The Summit will showcase the contributions by GAP taskforces and national consultative committees towards *A Vision for Australia* and offer delegates an opportunity to share their own views and ideas. GAP's *Vision for Australia* project aims to mobilise civil society to enrich the national debate, achieve demonstrable results and inspire political action. It will pursue collaborative, practical outcomes and develop a roadmap for Australia's increasingly diverse society over the next decade and longer term.

GAP welcomes partnership proposals from interested organisations and individuals.

Acknowledgements

Host

The Hon. Anthony Roberts, NSW Minister for Industry, Resources and Energy.

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- Chartered Accountants Australia & New Zealand
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- Department of Employment, Australian Government
- Department of Social Service, Australian Government
- Edith Cowan University and the ECU Emirates Centre of Aviation & Security Studies in Dubai
- Herbert Smith Freehills
- HP Enterprise Services
- Open Forum

Summit Steering Committee

The Hon. Phillip Ruddock, Sean Innis, Peter Dunne, Geraint Hudson, Prof James Guthrie, Alok Rohan, Prof Naira Shivanashan, David Redhill, Melis Senova, Bruce McDonald, Peta Furnel, David Turvey, Dominic English, Margaret Kidd, Benedikte Jensen and Malcolm Greening

Global Access Partners (GAP)

Catherine Fritz-Kalish, Olga Bodrova, Edyta Wiatr, Svetlana Stankovic and Roulla Yiacoumi

Thursday, 17 September 2015

Opening Dinner

Strangers Function Room, Parliament House of NSW
Macquarie St, Sydney

Catherine Fritz Kalish paid respect to the Gadigal people of the Eora nation and welcomed attendees to Parliament House to discuss the future of Australian jobs. She highlighted the multidisciplinary nature of the Summit’s attendees and was confident their breadth of experience would generate a range of practical recommendations. She stressed the need for all Australian children to have the chance to learn ICT skills and hoped Australia would remain a country in which young people could realise their personal and professional dreams.

She outlined the creation of Global Access Partners and its success over the last 15 years in initiating over 100 projects, engaging over 5,000 individuals and delivering hundreds of policy recommendations to improve people’s lives, productivity and wellbeing. Examples range from publicising pharmacogenomics research to target breast cancer treatment in Victoria to Open Forum’s strata law consultation in New South Wales³. Australia’s first national cloud computing strategy⁴ was informed by the Standing Committee on Cloud Computing, while GAP worked with the Federal Treasury to host a small business summit⁵ alongside last year’s G20 meetings in Australia. Ms Fritz-Kalish thanked GAP’s sponsors, supporters and the Summit’s steering committee and introduced the GAP team, before inviting the Hon. Anthony Roberts MP, NSW Minister for Industry, Resources and Energy, to deliver the opening address.

The Hon. Anthony Roberts MP welcomed attendees and praised their commitment to national progress. He expressed his support for GAP and explained the contribution the Open Forum consultation made towards NSW strata reform. The feedback received from developers, owners and renters helped the State Government transform obsolete strata laws into world-leading legislation. The consultation exposed the commonality of interests shared by stakeholders and encouraged conciliation on outstanding issues.

The Minister stressed the importance of employment and his government’s commitment to seeing 150,000 new jobs created in its current term, including 30,000 in the regional areas. The NSW Government is determined to drive growth and investment, and the new *Jobs for NSW* fund⁶, chaired by former Telstra CEO David Thodey, will soon begin work on retaining the State’s position as the Commonwealth’s leading economy. The NSW administration plans major infrastructure investments and will release \$190 million through the *Jobs for NSW* fund over four years to support business investment through innovative, targeted and cost-effective incentives. NSW technology hubs are ‘centres of innovation for bright minds’ and will ‘one day change the world’. NSW has talented people of every age to lead the State into the future, and the State is well placed to create high-quality jobs for current and future generations and ensure ongoing state and national prosperity.

The next speaker, **Mr Stefan Kapferer**, Deputy Secretary-General of the OECD, outlined the evidence-based research of the OECD – an organisation of 34 developed nations, including Australia and New Zealand – and offered a broad personal perspective on the future of work.

Unemployment remains higher across the OECD than before the 2008-2009 financial crisis, leaving 40 million people still looking for work. The traditional metric of monthly unemployment rates is still emphasised in the media, but the traditional link between employment and GDP is eroding. Nations such as Spain have endured both high rates of unemployment and severe shortages of skills, leaving many job vacancies unfilled. A drive across the OECD to give more young people tertiary academic qualifications saw many study subjects with little workplace relevance in a market in need of STEM skills or practical vocational training. Italy has an over-regulated labour market, which inhibits job creation, while Germany creates up to 300,000 new jobs a year despite GDP growth of just 1-2%.

Mr Kapferer introduced issues of **demographic change, automation and segregation** before offering policy perspectives.

Societies are ageing around the world, with increasing economic and employment consequences. Japan, for example, bears high levels of public debt and its growth has stagnated for over 20 years, despite a range of stimulating policies, including quantitative easing. Its unemployment is just 3% because its workforce is retiring, it has no immigration and its rate of female participation remains low.

This scenario will be repeated elsewhere, and although labour shortages can be eased by skilled migration, this supply may dwindle by 2030. There will be increasingly intense competition between countries facing similar demographic trends for well-educated migrants with relevant training and skills. Free movement of labour between EU nations has seen waves of workers from Poland move to Germany or Britain in search of better opportunities, only to return home or move elsewhere when circumstances changed.

The GAP Summit's briefing paper notes that *'over the next decade, almost half of all jobs could be affected by automation'*. 'Affected' does not mean destroyed, and while some fear that automation and digitisation will permanently reduce the number and quality of jobs available, history shows that in the long term technological advances always create more jobs and prosperity than they eliminated.

The highly successful German car industry exemplifies this phenomenon. While Mercedes uses more robots in manufacturing than other companies, it also has the largest number of employees in its history in roles from design to marketing and sells more cars than ever before. While digitisation will change the nature of jobs in the short term, it will not reduce demand for human labour as a whole.

Job roles have specialised over time as agricultural labourers moved into industry and then the service sector. There have never been greater differentials of occupations, skills, working arrangements or income, and these trends are set to continue. Mr Kapferer argued this should be seen as 'heterogeneity', rather than inequality, as higher skilled and earning people generate wealth and employment for others. The CEO of a major car company will earn many times the salary of most of its workers, but if he or she leads the company to success, the workers will agree their CEO is worth every penny.

Mr Kapferer advocated measures to promote flexibility, skills and growth to secure future employment. Employees can no longer rely on a lifelong career with the same company, nor will their youthful education remain relevant for their whole working life. People will increasingly work past 65 as life expectancy continues to increase and they remain healthy for longer. Life expectancy matched the retirement age when pensions were first introduced, but young people today can expect to live into their early eighties, ten years more than in 1970. **A more flexible retirement age** will help maintain the working population, boost personal incomes and share experience.

Public employment services strive to reduce the headline rate of unemployment, but soon will need to focus on activation strategies to qualify people for new jobs. Rather than focus on the difficult task of encouraging the long-term unemployed back into work, such agencies might achieve better results by **focusing on people already in or near the labour market**, just as political parties concentrate on mobilising their base at elections, rather than attempt to change the minds of those committed to their rivals. Such a strategy would do more to generate GDP and therefore create more opportunities for citizens at the margin.

Firms and industries must also **embrace more flexible working practices** to allow women and older workers to combine employment and family responsibilities and achieve a better work-life balance. **Changes to immigration laws** to encourage more skilled migration may also be required.

The mismatch between the skills employers value and those graduates possess must be addressed. Widening access to tertiary education does little to benefit individuals or society if it produces a surfeit of social studies graduates rather than computer scientists and engineers. Youth unemployment is lowest in OECD countries with a well-established, work-based vocational training system. France, for example, invested heavily in school-based training which has little relevance to the workplace, and a more effective system would give young people hands-on training in a working environment. Workers of all ages must be prepared to upgrade their skills, and training support should not focus only on the young.

Productivity growth across the OECD has slowed in recent years, and **improving relevant labour force skills** must play a central role in its revitalisation. The OECD established a productivity network after the global financial crisis, and the Australian government emphasises the importance of productivity in maintaining national prosperity. Spain implemented a raft of difficult structural reforms in recent years and created half a million new jobs in the last 18 months as a result. Spain's unemployment remains high, at over 20%, but is now falling rapidly as growth reaches 3%. **Australia should also pursue domestic structural reforms, international free trade agreements, market deregulation and labour flexibility** to maximise growth, and therefore job opportunities, in the future.

QUESTION & ANSWER

Questions were then invited from the floor. The initial contribution contrasted the close cooperation between businesses and universities in Germany with their failure to collaborate in Australia, and asked if government measures could improve the situation.

Mr Kapferer stressed the importance of **retaining a strong manufacturing sector** to support the service industries which are often suggested as a replacement for it. Germany prospers because it retains productive and profitable manufacturing capacity comprising around a fifth of the economy. Germany is also the only non-Scandinavian country to achieve the EU target of investing 3% of GDP in research and development. Only one third of this sum is public money, with two thirds funded by industry and business. Germany has many well-respected research institutes which link its industries and universities, a tradition which Australia lacks. A recent OECD report recommends that smaller countries bundle all stakeholder activity in a particular sector to maximise their effectiveness, an approach adopted by Slovenia where government, industry and academia have a joint innovation policy.

Asked about the appropriate balance between basic studies and more creative activities in education, Mr Kapferer denied there is a trade-off between the two. PISA assessments⁷ show **a correlation between the better results** achieved by many Asian and Scandinavian countries **in literacy and numeracy and greater creativity**. Increasing the numbers of girls studying STEM subjects in high school and university would achieve the most dramatic results, as girls routinely outperform boys in other areas of academia, but are still steered towards social science and the arts, rather than maths, physics and engineering. Parents still assume that sons are more suited to these subjects, even though girls outperform boys in these subjects at an earlier age. This stubborn gender bias at home and in the classroom wastes significant talent and productivity. Another OECD study found that children who use computers frequently, but for moderate periods of time, outperform those who use computers at home and school for more than 12 hours a week or do not use them at all.

Mr Kapferer agreed with the next questioner that **undue regulation of capital flows is detrimental to employment** as foreign investment is often required to develop productive capacity and new jobs.

The next speaker questioned Mr Kapferer's assertion that technological change will continue to generate more jobs than it destroys, and suggested a tipping point may be reached as a consequence of software-driven automation.

Mr Kapferer agreed his faith was based solely on historical precedent, but remained optimistic that the 'second machine age' will produce a net increase in jobs. Germany is melding traditional manufacturing with ICT in what it terms 'Industry 4.0', and he stressed that every business is now employing or affected by ICT. A strong manufacturing sector will remain the backbone of success, and **the merging of start-ups and new technology with traditional production** will produce the greatest benefits in the value chain. ICT is yet to generate the productivity boosts long predicted by its advocates, but there is no alternative to technological advance, and no way to opt out of its effects in a globalised economy, just as countries cannot prosper by rejecting free trade. If a company (or a

country) ignores digitisation, it will simply happen elsewhere and they will lose jobs and market share to those which actively embrace it.

The next attendee praised the OECD’s ‘thoughtful and intelligent’ consideration of conventional growth and productivity, but thought the very notion of ‘jobs’ might be called into question. Half the American workers who lost their jobs after the global financial crisis had no wish to return to them, and the growth of the ‘sharing economy’ and alternative ways for people to live their lives may become increasingly important. The delegate questioned whether the pursuit of growth will remain possible or desirable into a resource-constrained future.

Mr Kapferer agreed that many of the jobs recently created in the USA and UK appear precarious, part-time or poorly paid. He ascribed this to the poor quality of skills and qualifications in the USA compared to European countries. Wages are no longer rising as strongly as they did 20 years ago in western countries, but inflation rates are also becalmed at historic lows. Wages in China and other Asian nations are rising strongly, eroding the advantage of lower labour costs those economies leveraged to generate growth. Companies which outsourced their manufacturing to China to reduce costs are beginning to relocate production to Eastern Europe to reap the benefits of higher productivity there. Wages are also increasing more strongly in Germany, given its higher growth and demand for labour, but this may affect its competitiveness in the medium term.

Mr Kapferer noted that 26 OECD countries have a minimum wage, but warned that raising it near the median wage would reduce employment opportunities. The high minimum wage in France dissuades firms from taking on additional workers, while Germany’s rate of €8.5 an hour has little effect on employment. The effects of the relatively small gap between the minimum and median wage in Australia is offset to some extent by exceptions for younger workers.

Catherine Fritz-Kalish thanked Mr Kapferer and brought the session to a close.

SUMMARY

- The NSW Government aims to see 150,000 jobs created in the next four years through innovative cost-effective incentives and major infrastructure schemes.
- Many OECD nations suffer high unemployment and a shortage of suitable skills. Although increasing numbers of young people have a tertiary education, they do not graduate in subjects relevant to the modern labour market, while the neglect of vocational courses and apprenticeships has also backfired. Societies are ageing, creating the prospect of future labour shortages, and there will be increasing international competition for skilled migrants.
- The relationship between growth in GDP and employment is eroding as technology becomes the key enabler of additional productivity. Automation may affect half the jobs of today, but technological advance has always created more jobs over the long term than it initially destroys. The specialisation of labour which has driven human progress over thousands of years will continue to intensify, with growing disparities of income as a result.

- Measures to promote skills, flexibility and growth should be adopted across the OECD to boost employment. Workers will work longer, as they now live longer, to address the issues created by demographic change. Businesses must offer more flexible working arrangements to encourage older workers, women and minorities. Students should be encouraged to study STEM subjects to gain work-relevant skills. Youth unemployment is lowest in OECD countries with a well-established, work-based vocational training system.
- Although the link between growth and employment is weakening as technology, digitisation and automation increasingly drive economic development, growth will remain vital to ensuring sustainable employment in the future. Australia should pursue domestic structural reforms, international free trade agreements, market deregulation and labour flexibility to maximise growth, and therefore job opportunities, in the future. Cooperation between industry and universities, often mediated by research institutes, plays a vital role in Germany's success and should be improved in Australia.
- The retention of a strong manufacturing sector also strengthens the service sector which is often touted as its replacement. Australia spends heavily on research and development (R&D), but is poor at commercialising these inventions. Innovation requires the commercialisation and adoption of inventions, rather than merely invention itself. Nurturing a more skilled and experienced workforce and encouraging Australian investors to support new projects will be vital if Australia is to create 1% of the world's intellectual capital, and thus retain its 1% share of global GDP. Bundling the research efforts of all stakeholders in a particular sector could improve their effectiveness.
- There is no trade-off between success in traditional subjects and encouraging creativity in education. Countries tend to excel at both or neither. Girls should be encouraged to study STEM subjects and computer science to increase the suitably qualified workforce. Rigidities in the workplace and labour market should be addressed to encourage a more diverse range of recruitment and the agile deployment of resources required by fast-changing market conditions. Australia should pursue excellence in education and innovation with the same vigour it devotes to sport, if it wishes to achieve similar international success.

Friday, 18 September 2015

Legislative Assembly Chamber, Parliament House of NSW
Macquarie St, Sydney

Session One – “The future of work and its implications for individuals, employers, educators and policy makers”

Session Chair: The Hon. Philip Ruddock MP
Federal Member for Berowra
Special Envoy for Citizenship and Community Engagement.

Catherine Fritz Kalish welcomed attendees and introduced the Hon. Philip Ruddock MP to chair the session.

Mr Ruddock warned that Australia faces a difficult future if it fails to address workplace rigidities. He called for the pursuit of excellence in education and an ‘educational Olympics’ to replicate Australia’s sporting success in the academic field. Australian education should not prioritise ‘comparable outcomes’, if this is merely a euphemism for mediocrity. Achieving agreement among policy makers on these and other issues is difficult, but important, to ensure consistency. Australia should identify exceptional people and back them in commerce and education as it does in sport. Cochlear implants are a rare example of successful Australian commercialisation. Mr Ruddock called for more self-confidence and hoped the day’s discussion would help policy makers identify points of agreement they could progress in the national interest.

Prof Göran Roos said the speed and breadth of technological development was dramatic and would remain so for the foreseeable future. The current wave of progress in key enabling technologies is affecting many industries and facilitating rapid productivity growth. Where this outstrips the expansion of their markets, companies will be able to increase sales while employing fewer workers. Australia should therefore prioritise firms with world-class productivity improvement that serve markets that grow faster than this productivity increases, as only these firms will create sustainable jobs. The pursuit of jobs for their own sake, by contrast, will not secure long-term employment.

The service sector has produced only a third of the productivity growth seen in manufacturing over the last 20 years, but radical change will ensue as digitisation sweeps through professional and other services resulting in rapid increase in productivity improvement. Many jobs will be shed over the next 15 years as productivity outstrips demand, just as manufacturing jobs were lost to automation or low-wage competition in the past. Changes in US legislation now allows legal firms to use algorithms to analyse millions of pages in the discovery phase of class action suits, for example, rather than employ back office staff to read them. There are presently around 150 companies around the world that provide parts of such automation solutions for the professions. None of them are based in Australia.

Companies succeed by selling products which customers want and that nobody else can produce, and a nation or region which can produce these goods and services, while sourcing much of its inputs domestically, will build a complex and prosperous economy. However, Australia currently has a low level of economic complexity, sitting at -0.7 on a scale of -3 to 3 , while Japan, Germany, Switzerland and Sweden score around 2 . Australia's exports and GDP depend heavily on unprocessed minerals, and national prosperity would be significantly lower if it relied on the rest of the economy (as in the present situation when raw material prices decline to a low level). **Australia must therefore pursue a higher economic complexity to generate sustainable jobs and build a world-class knowledge base** to allow the country to develop, absorb and deploy new knowledge resulting in new activities and new offerings.

Just as complex economies generate more wealth than simpler ones, so services embody less complexity than the products they are inputs for. Fifty one per cent of services produced in the European Union are linked to manufacturing, and so the erosion of a nation's manufacturing base will inevitably harm the services which are often touted as its replacement. Around three quarters of all exported services from high economic complexity countries are either exported by or on behalf of manufacturing companies or provided to them. Indeed, the distinction drawn between manufacturing and service industries is misleading, as manufacturing and service activities are increasingly performed in the same company.

The automotive industry has led growth in productivity, and its decline in Australia will reduce job opportunities for young engineers. Many of the country's best managers have worked in sectors which supply the automotive industry, and bring the techniques they learnt there to other firms when they move on. During their first year at a non-automotive company⁸, such managers usually improve its bottom line by 5% by employing techniques that are common practice in the automotive industry – the traditional originator industry of almost all productivity improving tools and techniques in use. The automotive industry is therefore a major contributor to Australia's economic complexity, and the exit of the car-related part of this industry will reduce Australian complexity by 10% to 15%.

The Australian business and investment community has constantly failed to commercialise and support the advances generated by the nation's generous public investment in research. This is due to several factors⁹, not least the failure of industry and universities to collaborate. Discussions between the two have been sporadic and difficult, with sophisticated services such as finance questioning the relevance of current tertiary education to the skills they require and showing a low level of awareness of research activities in universities, or their relevance to their activities. This leads to them doubting the need to talk to universities at all, when a very different and more positive conversation would be happening in the major financial centres of the world.

Technologically driven improvements in service productivity are removing the need for 'middle men' in companies, just as they disintermediate relationships between consumers and producers. Middle management and back-office jobs are disappearing, while pay for highly talented people will continue to increase, given both this technology-driven productivity improvement of their work contribution and their limited numbers. Law firms, for example, will dispense with back room staff, while paying star performers with domain expertise, interpersonal skills and the ability to think on their feet ever higher salaries.

Some poorly paid service jobs, such as cleaners, will remain and indeed require the same attributes as those paid far more – the knowledge required to perform their tasks, creativity to solve problems without direct supervision and interpersonal skills to maintain good working relationships – but their productivity cannot be significantly improved. An oversupply of lower skilled labour will tend to reduce the wages they command, as those made redundant from middle ranking jobs will compete for lower ranking jobs as they lack the skills required for higher level positions. There will also be further downward pressure on their salaries to compensate for the lack of productivity improvements.

In the long term, new technology has always created more jobs than it initially replaces, and Prof Roos had faith the net positive results of Schumpeterian 'creative destruction'¹⁰ will continue, although there is a risk that the rapid technology development will reach a level where the speed of knowledge development will exceed the pace at which humans can learn – in which case we will have a situation where large groups that are exited from the labour market may never be able to return. However, the quickening pace and broader impacts of technological change may create larger and more persistent mismatches between the supply and demand for particular labour skills than before. The next ten to fifteen years may see many people made redundant without the skills to find new jobs of comparable value. Companies will also struggle to find the skilled staff they require, leading to a 'double whammy' of a high unemployment rate and large number of unfilled job vacancies.

While global unemployment stands at 200 million, another 250 million young people between 15 and 24 are neither studying nor employed. Around 42 million people enter the world's workforce every year, while almost half the world's companies have positions left unfilled for at least a year. This mismatch of skills is hampering growth and productivity, but education systems still fail to equip young people with the skills they require. While tertiary education can transfer domain expertise, it does little to develop the creative problem solving and interpersonal skills required in the modern workplace.

Australia's budget deficit is an early sign of its growing inability to support itself, and tackling the problem at its root by increasing complexity, rather than merely treating its symptoms by reducing spending or increasing taxes, holds the key to its solution. Decision makers must act now through a range of education, industry and innovation policies, if our children are to enjoy the living standards enjoyed today.

Mr Ruddock agreed that the erosion of Australia's manufacturing base is a serious issue and called for greater workplace flexibility to increase productivity and better education to equip young people with the skills they will require.

Productivity Commission Chairman **Peter Harris AO** offered a less alarming perspective on current realities, terming the prospect of millions of jobs being replaced by digitisation, robotics and the informal 'gig economy' a modern economic 'horror story'. Academics, unions and think tanks publish ever more studies on the issue, and there is little doubt that task digitisation will increase, with some full-time jobs replaced by remotely delivered services or casual employment through the 'gig economy'. Increases in informal work,

regardless of digitisation, are of particular concern to the union movement, as such workers tend not to be unionised, but private sector unionisation has been in steady decline for a quarter of a century, falling from around 40% at the end of the 1980s to around 17% today.

About 17% of working Australians earn their living as independent contractors, sole traders or small business owners. While this figure includes those reliant on the 'gig economy', it has grown by only 1% per annum over the last decade, with the numbers of casual workers steady or in slight decline. The Productivity Commission's forthcoming workplace relations report¹¹ will accept that internships, zero hours contracts and incremental employment are on the rise around the world, but, as yet, are not significant factors in Australia. Although the recent Productivity Commission inquiry into workplace relations was criticised for not offering a solution, there is still no public policy problem to address.

The USA and UK have seen significant increases in temporary employment since the global financial crisis. Forty per cent of the jobs created in the first year after the UK returned to growth were self-employed, while contingent workers¹² now comprise a third of the USA's workforce. The assumption in Australia is that the 'gig economy' will erode formal employment – and that this is a bad thing – but the developed world has faced and survived similar problems before. John Maynard Keynes worried in the 1930s that mechanisation would lead to wholesale technological unemployment, but while his prediction that living standards would increase has been validated, his prediction that mechanisation would reduce the working week to two days has yet to eventuate.

While some jobs will disappear, policy makers and commentators alike should remember that rapid resource reallocation is a vital part of any efficiently performing economy. To impede adjustment by handicapping or blocking new providers in an effort to preserve existing jobs would prove both futile and self-defeating. Australian consumers flock to new entrants because they prefer the services they provide and the cheaper and more convenient ways they are delivered. Uber and Airbnb would be nothing without people eager to provide and consume their services. Such firms are expanding the paid economy, rather than contracting it, and offer fresh opportunities to a much wider range of people to earn money in flexible ways which formal employment may deny them.

3D printing will in turn disintermediate industrial processes and simplify retooling, and firms will have to embrace it or be left behind by its more enthusiastic proponents. Despite the self-serving objections raised by established providers, consumers will continue to choose more convenient, modern and digital solutions over an expensive, uncompetitive and complacent status quo. While traditional firms have suffered from their failure to adjust, it is not clear that industry transformations have reduced employment overall. Despite decades of dire warnings from the music industry, for example, there are more people employed in making music around the world than ever before. Hotel workers are yet to be displaced by Airbnb in noticeable numbers, and while Uber may well displace some taxi drivers it is likely that autonomous cars will replace drivers of all kinds if consumers have confidence in them and legislation allows.

Consumer preferences in a free market remain the driver of change. Jobs may disappear in the pursuit of higher productivity, but impeding its growth could only damage national income in the long term. While politicians may be tempted by short-term 'fixes' to

appease public disquiet or vocal and well-funded lobby groups, Australia must pursue productivity to compensate for its declining terms of trade and the welfare problems of an ageing population.

The Commission's submission to the Harper Review of competition policy¹³ argued that regulators should provide space for new business to develop digital models. As the Harper Review failed to pursue the idea, the Productivity Commission is now producing its own report on business entry and exit¹⁴. Regulatory structures created before the digital revolution must embrace it, while still safeguarding the public interests which required protection originally. Digital business models in turn may have to adjust to meet these revised regulatory structures, but vested interests should not be allowed to hide behind a smokescreen of existing regulation to monopolise their trade.

Several reports warn of socially significant job losses to digitisation. An oft-quoted American analysis by Frey and Osborne¹⁵ in 2013 subjected 702 employment categories to both manual and algorithmic assessment of their vulnerability to the digitisation of their non-routine tasks – in the assumption that all routine tasks will be automated as a matter of course. Both human and machine analysis concluded that most sales-related positions, office administrative support and many other service jobs would be lost. However, the likelihood that many non-routine tasks could be automated does not guarantee they will be, as the shape of service provision will still be shaped by consumer preferences.

Frey and Osborne's study suggested that work requiring emotional response will remain in human hands, protecting employment in education and health care. Demand for workers in these sectors will tend to increase, rather than decline, in developed countries due to demographic shifts. By 2050, a million people may be employed in aged care – the same size as the entire manufacturing sector today. Such roles are often denigrated by those who do not hold them, but their economic value is a product of what people will pay for them, and elderly baby boomers, enjoying the fruits of compulsory superannuation and inflated house prices, may well pay a premium for personal, rather than automated, attention. People who have enjoyed high standards of living throughout their lives are unlikely to settle for less in their retirement, and the ongoing aggregation of wealth in society will mean they are capable of paying for it.

Growth in employment will also occur in other sectors of the economy, not least engineering and computer science, but nobody can be sure of the future. The application of technology will be driven by the consumers of the goods and services it generates, be they individuals or firms, and so our purchases will shape our future as much as our inventions. Policy should enable agility as circumstances continue to change, rather than prescribe any particular vision of the future which is unlikely to eventuate no matter how plausible it appears at the time. Regulation in the public interest must serve that public interest, and not be misused or hijacked to block the entry of new ideas and fresh approaches at the behest of producer lobby groups.

Ms Renée Leon PSM, Secretary of the Department of Employment, said Australia should prepare for the workforce challenges of the next 40 years. Technology is creating and destroying jobs, employment opportunities are shifting and patterns of employment are adjusting to fit new business models and demographic change. People are living longer and healthier lives, and will want and need to work past the current retirement age. The latest Intergenerational Report¹⁶ assumes that economic participation by the over 65s will more than double by 2055, but the ratio of workers to retirees will still decline from 4.5 today to just 2.7, having already fallen from 7.3 in 1975. Fewer people will be working, less income tax will be collected and higher health, pension and aged care costs will empty the public purse if current attitudes do not change.

While employment in manufacturing and agriculture has suffered long-term decline and many services may soon replace much of their workforce with software and machines, jobs will be created in food trades and ICT¹⁷, as well as caring, health and welfare support. As others have noted, retired but long-lived baby boomers will have plentiful capital to spend on aged care services, boosting what the OECD terms the 'silver economy'. Such people may well prefer to be attended by people, rather than robots. The latest bulletin by the Committee for Economic Development of Australia (CEDA) warns that up to 40% of the workforce may eventually be supplanted by automation¹⁸, and such workers must be retrained in the skills they will need in a reshaped labour market.

A significant cohort of men in their 40s and 50s has lost their jobs in manufacturing, but are too young to retire. As they can expect to live into their eighties, the country cannot afford – and they would not want – welfare subsistence for the rest of their lives. Employment policy must therefore link people who need jobs with the new skills they will require to obtain them to maintain social cohesion and equity. A pilot scheme in one area once dominated by the car industry is retraining former car workers to work in the aged care sector, for example.

Australia has managed such challenges well in the past and is well placed to face the future, given its well-educated and healthy population, stable democracy and position at the edge of the blossoming Asian economic region. Policy of all types must remain agile and responsive, adapting to new circumstances, rather than repeating measures appropriate to the conditions of the past.

Ms Leon predicted that the discrimination suffered by older workers today will be long forgotten by 2055, given the need firms will have for skilled and experienced workers. Female participation will also increase significantly; indeed, the Grattan Institute estimates that boosting female employment by 6% to match Canada would inject \$25 billion into the economy every year. Business leadership will be more diverse, reflecting an increasingly heterogeneous society, and workplaces will have to accommodate the needs of older workers, women with family responsibilities and those who prefer remote, part-time or flexible working arrangements.

New businesses will be driven by new technology, and product and service innovation will be continuous. The job market will be equally dynamic, and people from many backgrounds will contribute in ways unforeseeable today.

Ms Leon was heartened by a recent Financial Services Council survey¹⁹ which found that almost three quarters of older workers are optimistic about staying in the workforce beyond the traditional retirement age. The original pension age was set when average life expectancy was also 65, but has remained constant as life expectancy has grown. A healthy person of 65 can expect to live for another 20 years or more, much of it in good health, and declining numbers of younger workers will force employers to think more broadly about recruiting the right person for the job. For example, service industries with older clients may well employ older workers that relate to their customers.

Flexible working hours not only attract more female and older workers, but increase their job satisfaction and productivity. It is remarkable that Australia has not embraced remote working, given its rural expanses and urban congestion and the fact that almost every worker has a smartphone, tablet or computer capable of connecting office to home. Remote working could allow people in remote and regional areas to work for companies based in metropolitan centres, as well as enabling greater participation by part-time and older workers.

Ms Leon urged business leaders to modernise their organisational cultures and value the creativity and interpersonal skills of their employees. Managers should encourage, rather than quash, leadership abilities in all their employees to enable agility, initiative and greater productivity. The Australian Industry Group has called on business leaders to reconnect employees with the purpose of work and provide platforms that support, rather than control, them. The Centre for Workplace Leadership at Melbourne University is exploring ways in which leadership can drive productivity in the future and will soon release research on links between the two.

Australia has prospered from social and economic change in the past and will continue to do so in the future. The nation's human resources and natural advantages mean its people can be confident of success. Ms Leon asked attendees to consider the facilities and models an ideal workplace might embody and instigate the reforms required to achieve it.

Mr Ruddock thanked the speakers and invited questions from the floor under the Chatham House rule of non-attribution.

The first attendee argued that productivity improvements should be pursued in their own right, just as energy efficiency is desirable whatever one's opinion about manmade climate change. Improving productivity, and therefore GDP, will expand national capacity to handle whatever challenges the future actually poses. He called for consideration of the future nature of work and how to employ technology for the good of all Australians.

Singapore, Israel and Silicon Valley are often offered as exemplars of success, yet individual firms in these areas fail 70% of the time. Entrepreneurs and innovators may crash and burn several times before they succeed, and the speaker called for more tolerance of initial individual failure to ensure long-term national success. Creative destruction occurs at increasing speed, yet Australia lacks the culture of 'positive failure' required to help people learn from their mistakes and succeed in the future. **Experimentation ought to be embraced in enterprises**, rather than viewed with suspicion, as it is the best means to convert energy and opportunity into productive outcomes. The 70% of projects which fail

are the price which must be paid for the disproportionate gains generated by the 30% which succeed triumphantly. The speaker called on delegates to nurture a culture of experimentation and positive failure which supports rather than damages, diminishes or punishes entrepreneurs as they pursue innovations which will benefit us all.

It was agreed that many Australian innovations which deserved success have been shunned by a risk-averse domestic financial sector. Australia would never accept its low international ranking for commercialising domestic inventions in the arena of sport.

Economies of scale will encourage urbanisation in the developing world as well as the growth of enterprise ecosystems in the OECD. The advantages once delivered by traditional hierarchies are now impediments in a more agile age where openness to outside ideas is a priority. Community-driven platforms can provide support and reduce the risks for innovators working on speculative projects. Digitisation is a fact of life, and must be leveraged to maximise its benefits rather than shunned, blocked or feared. Countries in the far north have a culture of cooperation and mutual aid in response to the hostile climates in which no individual can survive alone. Australians, by contrast, view negotiations as a zero sum game in which they must profit at another's expense. Modern technology encourages social and business models of cooperation for mutual gain, and the confrontational nature of Australian culture must adapt to make the most of them.

The Australian Government has allowed businesses to become dependent on it, enabling a handout culture of entitlement among the business community as well as in welfare provision. Australian businesses instinctively call for the Government to solve any and all problems they may face, while companies in Switzerland, Sweden and Germany are more self-reliant. It takes a minimum of three years to change any organisation's culture, and so measures for change must begin now. Cultural adjustments to meet the challenges of digitisation are as important as the aspects of economics and technology.

Others agreed that Australia's 'entitlement culture' must come to an end as the nation can no longer afford it.

An executive in a company which helps businesses digitise – and sends its profits offshore – agreed with one of the keynote speakers that digitisation is yet to pose a major threat to jobs, but warned that no Australian firms are active in his sector. The education system produces doctors and lawyers, rather than computer specialists and entrepreneurs, and fails to equip young 'digital natives' with the skills they will need in the workplace. The national school curriculum should encourage computational thinking, problem solving and the ability to adapt to new environments in agile ways. Different states address these issues in different ways, with some ignoring the problem or merely running pilot schemes. A national approach is required to ensure Australia's workforce is properly prepared for the future.

It was agreed that efforts to minimise unnecessary differences between the states must continue, and federal ministers should be proactive in bringing their state counterparts together and working these matters through.

Half the firms in the US S&P 500 index have changed over the last decade, and it is ever harder for large companies to stay relevant. The graduates from Australia's 30 law schools are more likely to start their careers as baristas than barristers. Children should have more

opportunities to invent, explore and solve problems at school, and graduates should be encouraged to start their own businesses, as a traditional career in a large corporation no longer guarantees security.

Another speaker was impressed, and slightly intimidated, by the difficulty of mathematics questions set for Singaporean children compared to their Australian counterparts. Successful countries from Singapore to Finland show that **a child's creativity and problem solving abilities blossom when rooted in the fundamentals of literacy, numeracy and the physical sciences.**

The next speaker praised company initiatives to encourage innovation in schools. He called for schools to teach systemic thinking and urged industry to fund STEM initiatives based on essentially sound state curricula.

Another speaker agreed that technology creates, rather than destroys, jobs in the long term and urged delegates to consider measures to increase Australia's ability to adapt to the increasing pace of change. The embryonic automobile industry put tens of thousands of ostlers, grooms, farriers, blacksmiths and stable hands out of work. Few of these workers went straight to work in car factories, but found other jobs, while others manufactured cars. Technological development has always played out in this way, and the speaker accused more alarmist interpretations of 'grandstanding'. **The economy is hampered by a host of rigidities inhibiting rapid adjustment, including the high cost of urban housing which dissuades people from moving to growth areas, and an education system oriented towards young people completing a first degree, rather than older people undertaking their third.** Onerous and incompatible sets of local regulations impede the ability of tradespeople to operate in new areas, and while efforts are underway to reduce these barriers through mutual recognition between the states, their liberalisation is still to permeate through to local government.

Australia also lacks a legal mechanism for companies faced with financial difficulties to trade their way back to solvency, in contrast to **the Chapter 11 provisions** which help American companies – and the economy as a whole – bounce back from adversity. Australian firms in financial straits are simply closed down by appointed administrators who sell their assets to repay creditors. A host of restrictions inherited from Australia's colonial past also prevent personal bankrupts from serving on boards or owning companies. If risk taking and 'positive failure' are to be encouraged in the search of success, inhibiting entrepreneurs from attempting new projects after the failure of previous schemes damages, rather than protects, the national economy.

Disabled workers should also be remembered in discussions of expanding and diversifying the workforce. Around a fifth of the Australian population have a disability of some kind, including 15% of those of working age. While many factors could increase their economic participation, **encouraging change in employer attitudes and cultural assumptions** is paramount.

Up to 70% of future jobs will require STEM skills, and so immersion in these subjects must begin in school, rather than the tertiary sector. Children must be taught how to recognise and formulate problems as well as solve them. While Australian universities rank reasonably well in international academic terms, their poor links with industry means that

the University of Tasmania is best performer at 250. Universities in Switzerland, Holland, Sweden and Germany top the charts, ahead of the UK and the USA. However, universities cannot furnish their students with all the skills they need, and firms must act as 'technical universities' in their own right. System engineering must be learned in practice as much as the classroom, but Australia offers no places to learn such techniques. **Australian universities must embrace a transdisciplinary approach** to mirror the mix of abilities required in the workplace, with students taking courses in engineering as well as economics, just as people from different disciplines will contribute to project teams. The regard in which different professions are held around the world is instructive. While British parents might want their daughter to marry an accountant, a German accountant is seen as someone not intelligent enough for engineering school. Germans are raised in the knowledge they live well because they add value to raw materials and produce things which no other country can.

The graduates who secure the best-paying jobs do not always hail from the traditional sandstone universities, and key performance indicators could set targets for administrators to improve results in tertiary education.

The next contributor wondered if Australia has become too reticent to invest in risky, but exciting, ventures. Australian universities are 'pumping out the wrong sort of graduates', and too many lawyers are already looking for work. The speaker wondered if modern Australia is still an 'immature country' compared to older European countries which have suffered harder times and moved on to a different debate. Many calls for radical change have been made, but the 'easiest, cushiest ride' which Australians have enjoyed leaves them unprepared to take the tough decisions required to maintain that prosperity.

Entrepreneurship should be taught at school and university, as well as 'learnt by doing' in real life. It is no longer possible to learn everything one needs to know at university and merely use that knowledge at work. The sum of global information has doubled in the last two years, and data will continue to accumulate at an accelerating rate. Australia must foster **entrepreneurship as a skill and a discipline**, empower partnerships and encourage serial creativity with people having a succession of ideas and enterprises, rather than merely relying on one. Companies employing more than a thousand people should employ an '**entrepreneur in residence**' to encourage internal innovation and change.

Sociologist Jacques Ellul observed in *The Technological Society* in 1951 that the root of technology is 'technique'. Technology merely helps people to use different techniques to get things done. Some people will be able to envision new approaches and use technology to achieve them, producing disruptive and transformative change. Education should coax these qualities in young people, rather than offer a treadmill of exams and non-productive paper achievements which do nothing to prepare them for later life.

An entrepreneur and business owner said young children absorb innumerable complex concepts through individual exploration, trial and error and social osmosis, rather than formal study in a structured and linear way. Education should nurture a child's natural wonder and curiosity, rather than grind it out of them. She agreed that shifting the mindset of leaders was the main challenge in making the most of digital technology. Such leaders

must admit to vulnerability and uncertainty before they can **find the courage to change**, but few dare to reveal such vulnerability, lest it be mistaken for weakness by their peers.

The next speaker called on the tech industry to admit and embrace the effects which technology will have on the labour market, rather than playing them down. They should not be defensive about possible job losses, as this minimises the challenge we face and reduces the pressure for the radical change required in education and business practices. Blockbuster once employed 65,000 people in the USA, yet was dispatched by Netflix, a firm which employs just 2,000 people, many in entry-level positions. Driving may be obsolete in 20 years' time as buses, trams and cars are automated, putting large numbers of freight, public transport and taxi drivers out of work. Technological change will also create 'fantastic' new jobs and opportunities, but the main challenge is to bring the Australian public along on this transition. If Australia is to avoid the social calamity of a mass underclass in 20 years' time, it must embark on appropriate educational and social change today. Children under the age of eight can learn more from Google and YouTube than classroom activities, and while teachers may disagree, the best educators can use the internet to expand their reach, teaching many virtual classes rather than one at a time. Digital delivery will revolutionise education as it has other sectors, and educators must show the vision in embracing it as other parts of society.

The following attendee stressed the development of young people's capacity, as creating job opportunities will be pointless if people are ill-equipped to perform them. Just as lobby groups try to influence consumer choices in defence of animal rights or foreign labour conditions, so attempts could be made to **educate the public about incipient labour force change**. The average Aldi supermarket employs just 24 people, compared to the 110 who work at Woolworths or Coles, and many consumers choose lower prices over better service and range. In similar fashion, consumers are favouring digital providers who offer lower prices, but employ very few staff over traditional providers of goods and services.

The next contributor spoke of his experience in crowd-funded equity and noted the success of some major recent fundraising projects to commercialise promising innovations. Such success stories should be more widely publicised to encourage innovators and potential investors alike. Successful start-ups often employ people who go on to form start-ups of their own, enriching an ecosystem of entrepreneurial 'heroes' and investment 'champions', but patience must be shown as this scene develops in Australia. Unlike other speakers, this contributor believed today's surge of innovative activity might slow over the next couple of years and that **courage will be required to push ahead with reform** regardless. Economic slowdowns can create opportunities as well as stymie them. Airbnb may have caught the public imagination because it was launched during the global financial crisis when people had less money to pay for accommodation and were suddenly eager to earn extra income by inviting strangers into their homes. The speaker praised corporates for **encouraging entrepreneurship and innovation** amongst their staff by offering them **a share of the intellectual property** they create through equity deals, rather than claiming it entirely for the company. Such largesse offers an incentive for their most dynamic workers to stay with the firm, rather than strike out on their own, and encourages mutually beneficial creativity. He called for Australia to eschew the culture of entitlement implied by a 'fair go' and encouraged people to 'have a go' instead.

The insurance industry had embraced digital disruption despite its traditional conservatism because of consumer demand – and the substantial cost savings it delivers. Innovations such as driverless cars, by contrast, may destroy the car insurance industry. Digital and remote working will allow a wider range of people to participate, and the 'sharing economy' will allow more people to earn money in new ways. Airbnb allows older people to generate income from their major asset – their homes – rather than cling to the traditional workforce if it better suits their needs. The average Uber driver works for 20 hours a week, supplementing earnings from other sources, rather than relying upon it as their sole income source. Remote work and digitisation will allow women to balance careers and child rearing in ways which suit both their financial and domestic arrangements.

The next speaker was glad his family had emigrated from England to Australia in his youth, given the failure of northern cities such as Liverpool and Manchester to replace the jobs lost in industry and their subsequent social decay. Australia should not risk similar declines, and he welcomed initiatives to retrain car workers in aged care. He defended the existing education system, arguing it evolves to meet the nation's needs in spite of the constraints which surround it. His teenage daughter studies in ways which are novel to him, while the number of law schools represents an agile response to a surge of demand in the early 1990s. A similar increase in demand for subjects relevant to the jobs of tomorrow would produce a similar reaction in the tertiary sector. There is no common factor which links successful innovators and entrepreneurs; they simply work harder than other people for success. The speaker was also raised to work hard and rely on his own endeavours as a child, and he criticised industries and businesses for invariably calling for government help, as administrations are hamstrung by a host of factors and much criticised public servants are doing their best. Industry should take the lead and educate employees in the skills they need, rather than leave it up to public bodies and individuals. Industry must 'get on board' with the government and work towards common ends, rather than treat the shortage of workforce skills as 'someone else's problem'.

Fewer jobs may be needed in 2055 as automation, digitisation and robotics satisfy more consumer needs. Rather than being pauperised by a shortage of jobs, the public may enjoy an era of abundance due to productivity improvements in food production, manufacturing and services. Many people in 2055 may find other ways to contribute to society beyond a traditional job. Young people today often stress their strong social conscience, and **the jobs conversation should embrace other ways in which people can contribute to society.**

The next speaker stressed the importance of **enlightened and positive leadership** in shaping the future towards desirable goals. While the education system has many strengths, it should refocus on technical and digital skills from the primary through to the tertiary stage. His experience suggested that students are willing and able to adjust to a changing economy, with a third of the commerce students recently surveyed at the University of Melbourne planning to start their own business when they leave. This represents a seismic shift in student aspirations from a decade ago, when students undertook a business degree to pursue a corporate career. The University of Melbourne works with these students outside the formal curriculum to develop their entrepreneurial abilities and examine different business models. The Melbourne accelerator programme is recognised as a leader in its field and brings engineers, lawyers and students of commerce and art together to develop new products, secure funding and bring them to the marketplace. Although

companies complain that graduates are not ready for work, there is a shortage of firms willing to give undergraduate, masters and PhD students the work experience placements they need.

A subsequent speaker discussed the role played by the Department of Foreign Affairs and Trade. DFAT pursues 'economic diplomacy', and its ambitious trade agenda is based on the robust negotiation of free trade. It encourages industries and services of all types to export, but focuses on the sophisticated services sector. The Department believes the export of legal and financial services will play an increasingly important role and is seeking greater market access in Asia. Free trade agreements have been signed with Japan, Korea and China, and DFAT is collaborating closely with the OECD to address 'beyond the border' barriers to trade.

The next attendee criticised Australia's reluctance to **embrace remote work**. The national telework initiative of 2012 showed the potential of telework to bring greater economic opportunities to remote and regional Australia and encourage employment diversity. The push to encourage remote working should continue, but progress remains slow. Some managers still doubt the productivity of remote workers, despite a plethora of case studies proving its effectiveness, while potential recruits are afraid to raise the possibility of remote work at job interviews. **Remote work is therefore held back by work culture conservatism**, rather than any technological barriers.

It was noted that new workplace legislation was enacted with the best of intentions, but has worked against remote working by treating a workplace at home as equivalent to a traditional office, raising fears of criminal liability in case of accidents. The Trans-Tasman Telework studies²⁰ showed no increased risk of incidents at home, but the issue is the first excuse offered by companies when rejecting home working.

In closing remarks, it was agreed that **occupational health and safety regulations remain a barrier to remote work**, and both regulators and business models should adjust themselves accordingly. Regulators should not reject digital innovations out of hand, and business models which were not conceived when regulation was designed should not be forbidden by it.

Another speaker called for **clear civic leadership from the government to lay out a vision for Australia** in ten years or twenty years. While the market should be left to find the best means to achieve them, politicians should define the nation's goals to bring clarity and coherence to political debate.

The final speaker noted the calls for courage from businesses and investors, but appealed for **courage from the public** as well to allow government to innovate and occasionally risk failure in the search for better ways.

The Session chairman thanked the speakers and contributors and brought the session to a close.

SUMMARY

- The current speed and breadth of improvement in key enabling technologies is dramatic and will remain so for the next decade. The service sector has lagged behind manufacturing in improving productivity, but digitisation will see many professional services and back office functions digitised with major losses of jobs. Such developments are removing the need for 'middle men' in companies, just as they are disintermediating relationships between consumers and producers. Trade and industry policy should prioritise firms which generate world-class increases in productivity, as only these companies can create stable, high-quality jobs.
- Complex economies generate more wealth than simpler ones, and Australia's level of complexity remains low. The erosion of manufacturing, not least the eclipse of the car industry, has damaged the services which supported it. Australia must embrace greater economic complexity to build knowledge, create and deploy new products and techniques and so create sustainable jobs.
- While the net positive long-term results of Schumpeterian 'creative destruction' will probably persist into the future, the quickening pace and broader impacts of technological change may create mismatches between the skills required by employers and offered in the labour market. Australia and other developed countries may therefore suffer both unemployment and skill shortages, causing both social and economic difficulties. Education should emphasise the domain expertise, problem-solving ability and interpersonal skills required by both highly paid performers and lowly paid support workers in the new economy.
- The current impact of digitisation and the 'gig economy' can be over-emphasised as the number of workers outside formal employment structures has grown by just 1% per annum over the last decade. While internships, contingent workers, zero hours contracts and labour casualisation are increasing around the world, they do not yet pose a public policy issue in Australia.
- Concerns of technological unemployment in earlier eras have proven unduly pessimistic, and public policy should encourage rapid resource reallocation in a dynamic economy, rather than allow vested commercial interests to stymie consumer-friendly competition and change. Consumer preferences remain the main and most effective driver of change in a free economy, and while some jobs will be sacrificed in the pursuit of higher productivity, impeding productivity growth would only damage national prosperity in the longer term. Regulation conceived in the past should not impede new digital solutions, while the protection of the public must be maintained.
- While routine, and many non-routine activities, in sales, services and administration will be automated, jobs which require emotional responses, including those in health care and education, will remain in human hands. Demographic change may see a million workers employed in aged care by 2055.

- Australia should prepare for the workforce challenges which demographic change will produce by 2055. It should pursue greater economic participation by the over 65s, the retraining of retrenched workers in their 40s and 50s, and increased female participation enabled by more flexible working arrangements.
- Productivity improvements would be beneficial in their own right, regardless of future demographic or digital change. Australia should be more tolerant of failure as entrepreneurs and inventors may stumble several times before they succeed. Businesses should become more self-reliant in addressing and solving the problems they face, rather than relying on government action.
- Major firms are being eclipsed by innovative competitors with increasing rapidity, as barriers of entry decline and services are digitised. Australia must produce its own firms to digitise others, or face its own firms being digitised from abroad. The Australian Curriculum should emphasise computational and systems thinking, problem solving and adaptability as well as STEM subjects and foundational subjects.
- Other factors which inhibit labour mobility include Australia's high cost of metropolitan housing, a lack of ongoing education after school and university, and restrictive local trading regulations. Australia should adopt measures resembling the USA's Chapter 11 protections to allow struggling businesses to restructure and trade their way out of financial difficulties, rather than close.
- Disabled workers should also be encouraged into the workforce. Remote working should be embraced to enable wider participation, and health and safety liability should be revisited to encourage its adoption. Businesses must offer more work experience places to students, rather than complain that young recruits are ill-equipped for their first job. Commerce graduates are increasingly looking to start their own businesses, rather than work for large corporates.
- Autonomous vehicles may replace millions of driver jobs around the world, but a raft of new technology could eventually create an 'era of abundance', in which people will contribute to society in many ways beyond the world of work. Enlightened and positive leadership throughout business, education and government will be required to inspire the public to embrace inevitable global change. Politicians should offer clear national goals for the nation to achieve through market mechanisms and individual endeavour. Australian society has become ever more risk averse, but courage is needed from politicians, businesses, investors and individuals alike to succeed in the future, rather than fall victim to it.

Session Two - “The future of jobs: Which sectors will offer future growth and employment, where will our workforce come from, and how do we create conditions to attract workers?”

Session Chair: Prof James Guthrie. Head of Academic Relations
Chartered Accountants Australia & New Zealand

Prof James Guthrie opened the session by saying that far from ignoring the issue, most business leaders appear obsessed with change and transformations of people, processes and technology. Professional services are offshoring their tasks and contracting out their activities to reduce costs, while technology has improved communication, workflow, invoicing and some back office activities. A ‘second machine age’ may see the automation of the repetitive, rule-driven, data intensive processes which dominate many services. Investments in shares on the New York Stock Exchange may now be carried out without human involvement, while 65% of all sports writing in America is generated by machines. Automation does not imply a world of metal people, but a web of sophisticated software tools run in a cloud of data centres. Such developments will disrupt businesses and services in ways we still do not understand. Papers in the Summit’s introductory pack discussed business disruption, regulatory problems and the ‘hollowing out’ of the middle class, and Prof Guthrie urged attendees to give thought to these issues, before welcoming the session’s first speaker.

Kathryn Matthews, Partner of Deloitte Access Economics, considered the demand and supply of jobs in the future. Much of the first session’s discussion touched on rigidity, transition strategies and planning, and she drew on research undertaken at Deloitte under the umbrella of ‘*Building the Lucky Country*’²¹ to investigate these issues in depth.

The Deloitte papers argue that **better collaboration between government, industry and education is required to drive national progress**. As previously observed by several speakers, such cooperation is poor in Australia compared to its regional and global competitors. While Australia has been the ‘lucky’ beneficiary of the recent mining boom, circumstances may become less comfortable as it diminishes. Prosperity is a function of a nation’s people, productivity and terms of trade. The larger the working population, the greater its output, and the smarter and more efficient the nation’s production becomes, the greater its income will be. The more the rest of the world is willing to pay for Australian exports when compared to the cost of Australia’s imports, the more its terms of trade improve.

Australia has enjoyed continuous growth in living standards in recent decades, but success in each decade was driven by different factors. Productivity growth in the 1980s and 1990s was the result of microeconomic reforms which improved competition policy and labour market settings, alongside the development of personal computers and the early internet.

The first fifteen years of the 21st century saw less productivity improvement, but Australian prosperity was buoyed by a major improvement in its terms of trade. Rampant industrialisation in China increased demand for Australian minerals, benefitting both output and prices, and gave the nation a handsome increase in its international 'salary'. As the mining boom wanes, some have struggled to see where the next national 'pay rise' is coming from. The baby boomers are retiring, removing their output from the economy, and the current rate of productivity improvement will be hard-pressed to maintain current living standards.

Ms Matthews remained optimistic, however, as a Deloitte paper entitled '*Positioning for Prosperity*'²² identified **five areas with growing export opportunities in which Australia enjoys a comparative advantage – tourism, international education, agri-business, gas and wealth management**. At least four of these are also amenable to improvements in technology which will boost productivity. While this 'fabulous five' are all smaller than the mining industry, when aggregated they amount to a similar size. Having a variety of sectors to replace mining also reduces the risk if a single sector fails.

The predictions made in a 2012 Deloitte paper on digital disruption – '*Short Fuse, Big Bang*'²³ – have already been overtaken by events as digital techniques transform traditional business, drive innovation and deliver more customer centric outcomes. Companies exploiting the opportunities of digital disruption are enjoying much higher revenues than traditional businesses which are not. Deloitte is disrupting its own business model by delivering accounting services online and has achieved significant success.

Deloitte calculates that red tape costs the Australian economy \$250 billion every year.²⁴ While there is obviously a need for legislation in the public interest, and an acceptance that such regulation delivers economic benefit, more attention should be paid to the cumulative effect of additional measures, no matter how well intentioned each piece may be. Laws should be reviewed, and old or obsolete stipulations removed, more assiduously. The numbers of people employed in the private sector to ensure compliance with their own internal procedures is also on the rise, and while the finger is always pointed at government, the commercial sector must also revisit the processes and oversights it imposes on itself. Indeed, while technology has slashed the staff employed in 'back office' positions, these reductions have been counterbalanced by a steep increase in the number of compliance officers over the last 20 years, leading to businesses 'peddling hard to stand still'. Deloitte canvassed its own workforce to discover 'the dumbest thing we do' and is using those results to track and change 101 counterproductive internal activities.

Turning to the supply of labour, Ms Matthews argued that Australia must think more broadly about the future composition of its workforce and the skills they will require. The attention given to STEM subjects should not exclude the consideration of other practical skills which can be redeployed to meet new circumstances. One medical technology company in Queensland was hampered in the release of a new device by an inability to recruit the skilled seamstresses required in its manufacture. The company recruited a group of needle workers from a textile factory facing closure and brought their product to market on time. Skills shortages can arise, and be filled, in many ways beyond the usual parameters of the workforce debate.

She underlined the importance of every industry improving its connections and collaboration with universities, and the wider education sector to improve its pool of potential labour. Business may also use non-traditional methods to outsource activities, including crowdsourcing, or target skilled immigrants. Businesses must also offer more flexible working arrangements to employ and retain skilled and experienced people, for whom full-time employment is impractical or undesirable. Older people may want to work fewer days a week, while people juggling family and caring responsibilities may seek a better balance between life and work. Companies should increase workforce diversity by employing suitable disabled, minority or Indigenous workers and think laterally about sourcing the skills it needs, as the Queensland medical company did.

In summary, Ms Matthews called for government, business and individuals to take a broad view in reskilling Australia for the future. Australian businesses must embrace diverse workforce participation, encourage collaboration and invest in retraining their workers. Alongside the potential of the 'fabulous five', many jobs will be created in other areas and activities which have not been envisioned today. While career paths will continue to fracture, the opportunities of a non-linear working life must be embraced with optimism, rather than feared. The 'new normal' will see people 'zig zag' through their careers as new opportunities arise. More varied resumes should demonstrate ambition and imagination to prospective employers, rather than inconsistency.

Mike Cannon-Brookes, co-founder and co-CEO of Atlassian, discussed the techniques his fast growing software company deploys to attract, retain and motivate the skilled and imaginative workers it requires. He expressed more concern over the disruption of entire nations than individual businesses by snowballing economic and social change. While taxi drivers may protest about Uber today, such developments are merely the 'tip of the iceberg'. Uber is already looking to disrupt itself by developing self-driving cars, and Google's cars are kept from the road by slow-moving legislation, rather than technical obstacles. These administrative hurdles will inevitably be overcome, and autonomous vehicles may ultimately put a quarter of a billion people around the world out of work. Up to a quarter of all Australian jobs involve some element of driving, and if these jobs are lost, then a huge surge in alternative employment will be required over the next ten or twenty years.

Atlassian employs 1,500 people in ten offices around the world; 750 are based in Sydney's Martin Place, an office which has won the 'Best Place to Work in Australia' award for the last two years. Technology firms are fighting 'an absolutely war for talent', and so Atlassian must offer an outstanding working experience to attract millennials with first-class skills. It draws from a global, rather than domestic, talent pool and competes for workers who might otherwise work for Uber in San Francisco, Spotify in Sweden, or Apple in Cupertino.

Media stereotypes of good places to work focus on pool tables and video games, but nobody joins Atlassian because they can play ping pong during meetings. If that was all it took, every business would buy a table football set and their job would be done. Atlassian secures high-quality employees because they are attracted by its vision and values. People enjoy their working day when it has meaning, and Atlassian attracts and retains its recruits because it offers them meaningful work.

The company gives all its employees five paid days a year of 'vocational leave' to volunteer at the non-profit of their choice. Its target demographic has a strong social conscience, and Atlassian's philanthropic activities are the second most important reason why people apply for its vacancies.

The company has a **'talent' office**, rather than a conventional human resources department. Its **'experience team'** dedicate themselves to improving their colleagues' workday, from entering the building in the morning to leaving it at night. Their remit covers everything, from the physical environment to the tools people use. It has a large events team and invests significant sums in developing its employees' skills and career opportunities.

The organisation is driven by **metrics** in everything it does, and takes a similar approach towards its most important asset – its employees. Atlassian offers these services because they improve its productivity, and has worked its way to the top of the Best Place to Work awards by addressing deficiencies in a systematic and accumulative way. After coming 10th five years ago, it has regularly canvassed its workers for ways to improve and implemented them within a fixed budget. The company also performs a quarterly 'vital signs' survey of every employee which takes just ten minutes to complete but collects their opinions on leadership, strategy and commitment. Its results are analysed according to department, workgroup and location and every manager must devise and implement an action plan to improve, while declines are discussed with the leader in question. Amounting to a customer satisfaction survey for its own staff, the exercise generates significant benefits for the company as well as its employees.

Atlassian pays close attention to every employee's 'journey' and their 'life cycle' from recruitment till they leave. It recruits in eye-catching and unconventional ways, including touring a 'pop-up' office around Australia and holding a similar bus tour of Europe. Employees are made to feel valued from their first day, when they are treated to an actual red carpet on their entrance, while stock options are delivered with champagne and balloons to their spouse at home. Mr Cannon-Brookes holds a 'think like a CEO' meeting with every new employee and believes the time spent getting new workers 'up to speed' pays substantial dividends, while other companies leave new recruits to sink or swim alone.

He underlined the need to give employees meaningful work and to recognise and value their contributions in emotional as well as monetary terms. However, despite all these efforts, the company is still unable to recruit all the domestic employees it requires in Australia and must offer many of these posts to workers from overseas. **Australians have plenty of talent, but they lack the experience in the tech and software industry found elsewhere.** Relying on skilled immigration can only offer a short-term solution, and Mr Cannon-Brookes called for **better education** to increase the number of suitable home grown candidates. Atlassian imports experienced workers whose job is to get the most out of their Australian co-workers by sharing their experience.

Australia produces 1% of the world's GDP, but if it fails to generate 1% of global innovation in ten years' time, it will suffer economic disruption, rather than benefit from technological change. The 5,000 people who work for Uber may put hundreds of thousands of taxi drivers out of a job, meaning the profits which once stayed in local communities will flow inexorably towards northern California where it is based. Profits from similarly disruptive

ventures will also concentrate in the hands of the few who own the intellectual property behind them, and if none of these ventures are based in Australia, then none of that money will flow here. Australia is an early adopter and major per capita consumer of technology and tech-enabled services but a failure to launch and sustain its own tech companies will see innovation pauperise, rather than enrich, the nation.

The simplest and most effective way to increase Australia's technology labour force would be to **encourage girls to study STEM subjects at school and university**. Girls outperform boys in most areas of academic endeavour, yet most girls drop science and maths at school and rarely choose engineering or technology at university. Achieving more equitable gender distribution in these subjects could **double Australia's potential workforce in a tech sector** which created 15,000 jobs last year, but received just 3,000 computer science and technology graduates. The disparity is currently filled by skilled immigration, but this situation is not sustainable.

Australia should not spurn its 'huge opportunity' to benefit from technological change. The nation boasts some excellent research institutions and spends over \$9 billion a year on R&D, placing it in the top ten spending nations in the world, yet has failed to commercialise its inventiveness because it lacks the educated and experienced technology workforce to work in such firms.

Prof Guthrie thanked the speakers and invited questions and comments from the floor.

The first speaker saw the calls for courage as an uplifting take on risk management. Australian governments and businesses alike have grown ever more afraid to take risks, and he signalled his willingness to discuss ways to remedy the situation in the future. The avoidance of risk has been made rational by the nation's culture and legislative and business environment, and the speaker called for suggestions to encourage the national appetite for risk taking to be rekindled. Much of the world's wealth is held by individuals and corporations who grew rich by corraling government into protecting them from competition, rather than producing better goods and services. Such companies profit from legislatively protected monopoly, rather than innovation. Just as Australian society tends to encourage safety and penalise risk, its lack of Chapter 11 type provisions punishes commercial failure without hope of self-generated redemption. The speaker recommended the reading of Nassim Nicholas Taleb's *Anti-Fragile* and consideration of its points regarding resilience, risk and the pursuit of low probability, high impact events which can transform one's life for the better. Universities should teach their students how to learn, rather than focus on particular, but transitory, aspects of knowledge outside the realms of chemistry or engineering. The flexible workplaces demanded by previous speakers will develop through a process of risk management, and he called for risk takers to be celebrated in Australia, rather than criticised. Innovative and successful firms such as Atlassian are not considered newsworthy by a media obsessed with celebrity chefs. Australians should nurture and support risk takers just as American inventors and entrepreneurs are often supported by their peers and their community in their early years. The speaker invited interested delegates to meet to define specific barriers to progress and take responsibility for tackling them themselves. Societies and economies are the product of innumerable individual decision, and only by changing these one by one will progress be made.

The next delegate considered the 20th century to have been an ‘Australian century’, but despite 25 years of uninterrupted economic growth, its high standard of living, sporting success and developing artistic prowess, he feared the nation stood at the cusp of failure. Previous speakers have pointed to failures in education, culture and innovation, and the 21st century will not be an Australian age without radical change. Australia can no longer indulge in the ‘sybaritic enjoyment’ of the recent past, but while some argue only a crisis will alert the national to the necessity for change, he hoped attendees could offer an agenda which could inspire action.

The next speaker took the view that the main drivers of human progress have not changed since the invention of agriculture. A society must have the basic infrastructure of transport, energy, water and sewage in place to operate, and services such as education, health and security to succeed. If the government can ensure these factors are sound, then private businesses can thrive, generate national wealth and create employment. Just as peoples in the past have succeeded through a single innovation, be it the coin or the chariot, so Australia should invent something for itself to carve a global niche of prosperity. The speaker called for **better accountability for public money transfers** and, although the public sector is unlikely to become a wellspring of courageous innovation, GAP’s ‘Second Track’ process can offer a safe space for the exploration of more radical ideas.

The next contributor urged steps to improve the commitment, engagement and discretionary effort of the current workforce to improve its productivity. Companies should make a conscious effort to harness the collective wisdom of their employees because the offer of an emotional and intellectual stake in its activities will unlock their creativity. Employees appreciate being valued as well as being paid, and the most successful workplaces satisfy a wider range of personal needs than the purely financial. In contrast to traditional, hierarchical, top-down approaches, new companies often embrace new leadership styles in which command may be given to those with the best ideas, rather than the longest job title.

Atlassian has shied from traditional company structures based on factories from an earlier age. It favours a **decentralised, even chaotic, approach** in which small autonomous units have a sense of identity and purpose of their own, independent from other groups working on their projects. Some companies are even experimenting with ‘holacracy’, in which there are no formal structures at all. However, as eccentric as this appears, ‘sometimes you need people out on the fringes of lunacy to learn from them’. Zappos, based in Silicon Valley, is perhaps the largest firm to eschew hierarchy in an attempt to preserve the flexibility and energy it enjoyed as a start-up, although its abolition of managers and job titles saw a quarter of its employees leave.

Dan Pink’s *Drive* offers **mastery, autonomy and purpose** as the three elements which all employees crave, and the need to satisfy these requirements was ‘baked into the DNA’ of Atlassian from its inception. The company develops its employees’ skills to improve their job satisfaction as well as boost their productivity. The pride and pleasure that can be taken from craftsmanship is as important in coding as it is in carpentry. Autonomy gives workers control of their day and work which has purpose, and a place in a clear strategy will encourage greater commitment from those who perform it. Despite its scepticism of pure holacracy, it also embraces creative ‘chaos’ in ways which traditional firms cannot. A business needs enough chaos to spark creativity while retaining enough structure to turn

ideas into productive reality. Mr Cannon-Brookes explained his management style in terms of a nuclear engineer at a power plant manipulating control rods to ensure the core remains critical without melting down. His only decision is to increase or decrease 'chaos' in the workplace to maintain the right balance between anarchy and stagnation. Managers should maintain the right balance, rather than remain content with a risk-averse approach which protects them from the appearance of failure, but does nothing to improve the long-term prospects of their firm. Managers should have the courage to err on the side of chaos, as success in the future will belong to the most dynamic companies, rather than those which play safe.

The next attendee emphasised the importance of Australia producing more firms like Atlassian to meet the goal of generating 1% of the world's tech innovation. He urged those present to compile a list of actions to take and, just as importantly, allocate and assume individual responsibility for their pursuit. He stressed the importance of resilience alongside the calls for courage, as resilience is the quality which allows entrepreneurs and inventors to recover from setbacks, overcome obstacles and achieve success. Attendees should consider ways to encourage an Australian culture of action and adopt an international, rather than introspective point of view. Australians can suffer from an inferiority complex abroad, but experience in the wider world should prove to them that Australian education, industry and innovation ranks well with other nations, and individual Australian companies can do extremely well. Indeed, a lingering sense of inferiority can provide a constant incentive to improve, but the whole country must adopt a more international perspective, rather than merely exceptional individuals and firms. People tend to assume that companies such as Servcorp and Atlassian are American, rather than Australian, because of their unusually international perspective. Singaporeans export their services as a matter of course, given the small size of their domestic market. Australian policy must concentrate on producing more of the world's IP and generating high-quality jobs as a consequence, rather than fixate on reducing unemployment statistics as an end in itself.

The next speaker agreed with the importance of employee morale, noting that a 20-year study in one defence company produced a direct correlation with poor employee morale and the failure of their project six months later.

The next commentator believed things are slightly better than often believed, but wondered if companies such as Atlassian and Servcorp are aberrations which succeed despite Australian conditions, or will be followed by a host of similarly successful firms.

Another speaker argued that Australia's culture needs 'selective redeployment', rather than wholesale change. Australia already has a dynamic, internationally successful 'have a go' culture in sport and should direct a portion of this energy and commitment to more productive outcomes. The speaker challenged attendees to identify an idea they could pursue within their organisations to achieve change and share with others.

In his concluding remarks, Mr Cannon Brookes emphasised that while not every new job will be in technology, such jobs lie at the core of many industries and support many other positions. He emphasised the need for Australia to create 1% of the world's technology in the future in order to maintain its 1% share of global GDP. Australia must create its own technology, as well as consume the tech products produced in the rest of the world, if it

wants a share of the wealth it generates. Australia is awash in consumer technology – it has the second highest per capita use of iPhones after Singapore – but produces little of it.

Atlassian's 'team health checks' encourage a shared sense of purpose and ensure individual accountability. Atlassian looks for recruits who stand out from their peers, are willing to 'have a go' and have proved themselves smart and courageous. Recruits from larger firms must have their 'corporate polish' removed before they fit in, and can struggle outside a traditional corporate environment in which many tasks are done for them, eroding their skills. Some people have failed to adjust and returned to the corporate sector as a result. The challenge for the company as it grows is to retain the youthful flexibility and dynamism which brought it success.

Atlassian may well be an aberration in Australia, and Mr Cannon-Brookes stressed the need to foster talent and experience among home-grown workers to turn Australia's heavy expenditure on R&D into world-beating products, rather than lose them overseas. While Australia is a nation of inventors, it is not a nation of innovators, as innovation requires the commercialisation of an idea. Australia can point to 130 world-changing inventions, but has commercialised just one – cochlear ear implants – on an international scale.

Ms Matthews praised the drive, energy and talent displayed at the Summit and urged attendees to seize every opportunity to make a difference. She had met many dedicated and passionate people around the country in start-ups, business and education who were seldom appreciated or recognised. Australia should celebrate its success stories rather than merely complain. She called for all stakeholders to collaborate more broadly and pool their energy and capabilities to achieve the nation's goals. She urged children to follow their passion, whatever it turned out to be. If someone enjoys what they are doing they will find a way to succeed, regardless of change in the wider economy. Such people will acquire the skills they require to follow their dreams and make their own opportunities.

Next year's Summit will discuss a 'Vision for Australia'. GAP's taskforces and consultative committees will consider priorities and practical projects to ensure its ambitious aspirations become realities. Delegates were encouraged to contribute where they could as members of the GAP fraternity, before the session was brought to a close.

SUMMARY

- Tourism, international education, agri-business, gas and wealth management have been identified by Deloitte Access Economics as growth areas which could, when aggregated, compensate for the waning of the recent mining boom. Red tape costs the Australian economy \$250 billion every year, and while there is an obvious need to protect the public from abuse, attention should be paid to the cumulative effect of additional regulation, no matter how well-intentioned each individual measure may be. Regulation should therefore be revisited, and obsolete measures removed, more assiduously. Companies should also review the growing numbers of workers employed to ensure company compliance with self-imposed procedures.

- Australian businesses must embrace diverse workforce participation, encourage collaboration and fund the ongoing reskilling of their employees. While career paths will continue to fracture, the opportunities of a non-linear working life must be embraced with optimism, rather than feared.
- Companies such as software firm Atlassian employ novel methods to attract and retain skilled workers in the face of intense international competition. High-achieving millennials are attracted by a company's vision and values, rather than free food and pool tables, and successful companies must strive to improve the working environment in a systematic way to improve their own productivity. Employees should be welcomed to the firm, given meaningful activities and see their contributions valued in more than monetary terms, while worker surveys can highlight problem areas to be addressed.
- Australia must generate 1% of the world's intellectual capital in the future if it is to maintain the 1% share of global GDP it enjoys today.
- Governments should focus on improving the basic social infrastructure of transport, energy and water, and services such as health, education and security, as these have underpinned all human progress and will continue to allow business and prosperity to grow.
- Firms should make a conscious effort to harness the collective wisdom of their employees and improve their commitment to boost productivity. Fresh, decentralised leadership styles must be adopted in new companies, in contrast to strict hierarchies of control, with managers balancing creative chaos and productive order to achieve the best results.
- Australia must embrace a 'have a go' culture of risk taking and endeavour, rather than the 'fair go' culture of entitlement and common mediocrity.

Post-Session Contributions

One contributor called for workers to become more flexible in 'what they do, when they do it and where they do it'. The workforce must respond to evolving demand in a more agile fashion, but it remains a major undertaking for a family's breadwinner to decide on a radical change of direction, persuade their loved ones of its necessity and to execute the move. Such people would benefit from a permanent framework of social support to facilitate such transitions by marketing the availability of new jobs and opportunities, particularly to those about to lose their current jobs, and helping them secure them. The Salvation Army would be well placed to offer such a service and could deliver it at a marginal cost unachievable otherwise.

Another delegate considered a series of issues which had not been addressed. These included the significant divide between urban and rural employment and potential solutions to close it, the adverse health effects of city dwelling, the encouragement of businesses to relocate to large regional centres, the desirability of giving unemployed people a socially useful job rather than a mere handout and, finally, the need to limit population growth as it outstrips available resources and infrastructure.

Others urged the incorporation of work experience and internships as a vital part of school and university curricula. Such schemes would encourage the collaboration between education and industry which many have called for, teach valuable problem solving and interpersonal skills, and could be easily implemented through existing structures.

Some wondered whether the focus on STEM subjects undervalued the importance of communication skills, but others stressed that education is not a 'zero sum game' and that the study of STEM can coexist with creative endeavours and interpersonal awareness.

Universities were criticised for their lack of urgency in launching new courses, with delays of up to five years exacerbating Australia's gaps in skills. Australia ranks poorly in terms of collaboration across sectors, and increasing the mobility of students and staff between universities, large companies, start-ups and government would offer a practical step which all stakeholders could commit to. Others argued that transparency and free flows of information are the keys to empowering businesses and employees to adapt to changing circumstances themselves.

Some contributions reiterated the need to refocus on productivity as the driver of national prosperity. Prosperous societies not only create jobs, but have the wealth to indulge social progress and cultural attainment. Great philosophers, scientists and artists are a product of prosperous societies as much as consumer goods and services. Others advocated further investigation of the 'sharing economy' through a new GAP taskforce. It was argued that serious economists largely agree on the problems to be faced and the measures required to solve them, but politicians of all stripes lack the resolve to adopt them.

Lunch Session

Mr John Burgin the regional head of Cognizant Technology Solutions, outlined his company's rapid growth from its formation 21 years ago to its employment of 220,000 people today. It is building a tech query and information science lab in Sydney to help companies analyse their customers' data. It focuses on its next transition to avoid the irrelevance which overtook once dominant firms, such as Kodak and Nokia, and is engaged in writing consumer software for wearable devices.

As noted by previous speakers, large companies face an ever-increasing struggle to stay relevant as barriers to market entry collapse to digitisation. Established corporations have an obligation to their shareholders to build robust management structures and maintain predictable processes, but these structures also increase their vulnerability to more agile new entrants.

Mr Burgin praised GAP's creation of forums in which policy makers, educators, industry leaders and other stakeholders can discuss the future of society. Cognizant will continue to support GAP and reap commercial benefits from the opportunities and insights it generates.

Keynote speaker **Michael McQueen** pointed out that a number of once important companies, such as Saab, Blockbuster, Borders and Atari, have disappeared or face oblivion. Sony was once a byword for innovation, while Steve Jobs and Steve Wozniak founded Apple in the hope of aping Atari's success. Blockbuster once dominated the high street, yet was obliterated in short order by digital downloads of varying legality. The arrival of Netflix in Australia may similarly damage Foxtel and cable TV. Blackberry had 43% of the American mobile phone market at the start of 2010, but reaps less than 1% of sales today. John Chambers, the outgoing chairman of Cisco, has warned that 40% of firms on the Fortune 500 will have disappeared in ten years' time. Change has always been a fact of life, but its pace is increasing. Over the last hundred years, the average tenure of a firm on the Fortune 500 has dropped from 67 years to just 15. Firms must understand why their counterparts tumble or prevail, if they wish to survive themselves.

Companies are threatened when their markets are disrupted by new entrants, techniques and technology, but they doom themselves by clinging to the methods which brought them success in the past. The internet and social media are empowering consumers as never before. Consumers have unlimited information and choice at their fingertips and, just as importantly, have been given a voice which can ruin the reputation of any company which offers poor service or shoddy quality. No amount of advertising can compensate for poor reviews on Amazon or a Twitter storm as grumbles which would once have been restricted to family and friends can go 'viral' around the world. Specialist sites allow customers to rate estate agencies or any other service, and drive or dissuade custom on a significant scale.

The internet allows customers to connect directly with suppliers and reduce the prices they pay by avoiding 'middle men'. This disintermediation, exemplified by Amazon, has ruined several traditional retailers, and services such as recruitment agencies and travel agents are increasingly irrelevant as companies search for new workers on LinkedIn and people book their flights themselves.

The development of 3D printers may soon remove the need for manufacturers as well. 3D printers are now available on the high street for just \$1,100, and a host of materials, from titanium to ceramic and rubber equivalents, can be used, as well as resin. Consumers may soon buy CAD files from an iTunes like repository and print their own goods in their own homes on demand, rather than buy them.

Nokia released CAD files for their phone cases, allowing anyone to essentially download the product for free. Customers can now design and print their own cosmetics, while a Chinese property developer recently printed and built a five-storey apartment block in just 24 hours. By cutting out manufacturers as well as wholesalers, distributors and retailers, **3D printing may be seen as the most profound disintermediation of them all.**

Although older people may prefer human service, **robotics and automation will dominate many areas of employment and the workplace.** A study from the University of Sydney argued that almost half the 700 professions it assessed face a high risk of replacement by algorithms, software or robots over the next 20 years. Autonomous cars are on the brink of widespread deployment and have already been tested on South Australian roads. General Motors have announced their latest Cadillac will deploy autonomous safety features at high speed, while Tesla will send updates to their cars over wi-fi. Car insurance will be changed, if not rendered entirely redundant, by the widespread adoption of driverless vehicles, as will many millions of people who drive for a living around the world. Uber has already disrupted the taxi industry and is pre-empting its own disruption by heavy investment in driverless operations. Car ownership itself might dwindle if driverless cars can be summoned on demand, while the highly profitable urban parking industry would disappear as well. In 30 years' time car ownership – and car driving – may be as specialised a hobby as owning and riding a horse.

Modern, trendsetting businesses can be disrupted just as easily. Generation Y's lack of interest in Twitter means a business which enjoyed exponential growth and intense media interest a few years ago now faces disruption, job layoffs and irrelevance itself. Just as BlackBerry rose and crashed in spectacular style, so Twitter could crumble in the face of apps which appeal to a younger demographic, such as WhatsApp, Instagram and Snapchat.

Many businesses, political parties and other organisations struggle with a similar inability to engage younger people, but others do survive for decades or even hundreds of years. DuPont is over 200 years old, while Lego is approaching its centenary and recently overtook Mattel as the world's largest manufacturer of toys²⁵. Disruption is inevitable, but this does not mean that established companies must fall victim to it. Just as Lego has constantly reinvented itself to remain fresh and relevant to new generations of children, so other companies can choose to survive by reinventing and disrupting themselves before others can. Just as a person stranded in a hostile environment should search for water before they grow thirsty, so firms must prepare for the future before crisis overwhelms

them. Just as a skilled and experienced sailor can tack into the wind, so firms and individuals can pursue success in the face of adverse and unpredictable economic and social conditions.

Workplaces will also change as Generation Y comes to dominate them. Currently aged 16-34, Generation Y tend to be adaptable, agile and flexible – qualities which are ideally suited to the modern working environment. But while they are innovative, 'tech savvy' and natural networkers, they have been raised in a parental and educational culture which has emphasised self-esteem rather than self-reliance. While previous generations were left under no illusions that life is often arduous and unfair, Generation Y expects praise and validation at every turn and can appear fragile and immature to their more resilient elders. Generation Y tend to give up when confronted with the prospect of effort or adversity.

Their expectation that life should be easy and fair can undermine their personal relationships as well as their studies or work. Having been raised to expect things to be easy, they assume a goal or task which becomes hard is not something they should be attempting, rather than trying harder to succeed. The formula they have been taught by example that 'easy equals right and hard equals wrong' has led to a 68% non-completion rate at certain TAFE colleges. If they do not blame their activities for failure, Generation Y will turn on themselves, leading to a proliferation of mental health issues and the medicalisation of what were once unremarkable human reactions and emotions.

Accustomed to constant attention and praise at home and school, Generation Y workers can expect similar support at work, rather than accepting that all the thanks they require is in their pay packet. One survey found that 60% of Generation Y workers would like praise from their superiors every day, with over a third saying two to three times a day would be even better. Mr McQueen traced the birth of the self-esteem era to 1979's 'International Year of the Child' and argued the whole concept of parenting has changed radically in recent decades. Today's children are constantly assured they are unique or special or bound to change the world, regardless of their actual talents or achievements, and so have become dependent on a constant stream of unearned praise. This barrage of external validation has sapped rather than bolstered their internal resolve, stripping them of self-confidence when left to stand alone. Indeed, Generation Y are so habituated to constant praise, they perceive constructive criticism as a personal attack and may prove ill-suited for an ever more competitive adult world having won a ribbon for every race run as a child. Children are now seen as so fragile that some schools avoid the word 'fail' to describe poor test results, preferring terms such as 'deferred success'. Many speakers at the summit had called for resilience in the face of adversity and risk taking and courage in the pursuit of success but, as parents, these same people had raised a coddled generation entirely unprepared for the task ahead.

Sean Innis praised the quality of the debate and said the country needed more of such discussions. Independent stakeholders often react in similar ways to the same set of circumstances, but only realise they are not alone when attending multidisciplinary events. This realisation and acceptance of common purpose can in turn encourage politicians to incur short-term costs to pursue long-term national goals.

History shows that most predictions are wildly mistaken, but Summit delegates agree that disruption is real and inevitable, although they differ on its extent and impact in the short term. Large numbers of jobs may vanish, at least in the short term, while companies may struggle to find the workers they need due to ageing populations and shortages of skills. Past experience suggests such problems are surmountable as more serious threats have been overcome before. Humanity has survived and prospered through untold threats and disruptions and, whatever the hiccups along the way, society does progress, people tend to succeed and communities generally adapt and recover in the face of tumult and adversity.

The young people shaped by the much criticised education system of today are already driving the reinvention required by tomorrow's society. Whatever the paths planned for them by their elders, they will forge their own and find success on their own terms in ways we cannot yet imagine. However, the decisions we make today can ease their task or make it harder, and Mr Innis called for wisdom and courage from all. The creation of new jobs and businesses will depend on single-minded attention to consumer needs and adding value. Businesses which provide goods and services which consumers want will always succeed, although consumers may not know they want it till they see it.

Mr Innis cautioned against betting too heavily on particular forms of education or industry to the exclusion of other alternatives. While encouraging STEM subjects is clearly beneficial, too many predictions of future needs have foundered in reality to trust all those made today. The consensus that broadening tertiary academic education would prove an economic and social panacea has been exposed as an expensive way of producing graduates ill-prepared for the workplace and labour market. A focus on traditional subjects and the reinvigoration of vocational training and trade apprenticeships would have served many young people much better.

Regulation should facilitate progress, rather than prevent it. It should protect the public, rather than established vested interests, but all regulation will tend to create rigidities regardless of its intentions. Regulation should allow new and better models to emerge, while remaining cognisant of the problems it was created to protect against.

Mr Innes embraced Mike Cannon-Brookes' analogy of management as manipulating nuclear control rods and called for decision makers to consider when creativity should be encouraged or stability reinforced.

In conclusion, he hoped the debate could continue on sensible terms without recourse to threats of imminent crisis designed to panic people into accepting the agenda of whoever cried wolf. OECD figures rank Australia as the world's best place to live. The Department of Social Services safeguards the wellbeing of the vulnerable because not every Australian can adapt to social and economic change. Amidst so much talk of success and achievement, the needs of those who might fall behind must never be forgotten. There will be businesses which crumble, and workers who will never find another job, just as the ruins of great cities lie forgotten under sand.

Mr Innis thanked the Summit's host, sponsors and organisers and urged delegates to display the courage they had called for, as he brought proceedings to a close.

SUMMARY

- Large companies face an ever increasing struggle to stay relevant, as barriers to market entry collapse with the rise of digitisation and markets are disrupted by new entrants, technology and techniques.
- The internet and social media offer consumers exponentially more information and market power than ever before, obviating the need for middle men and gatekeepers and ensuring that sub-standard service is widely publicised.
- 3D printing may soon disintermediate even the manufacturers, as consumers construct their own goods at home from CAD files bought like MP3s.
- The tech savvy Generation Y will increasingly dominate the workplace, but as they were raised on unconditional praise and are unaccustomed to inconvenient effort, they will demand new styles of management.
- Most predictions of the future fall flat, but ongoing disruption is already an established phenomenon. Australia has prevailed in the face of greater challenges before, and it remains well-placed to succeed in a digital future. Government should not unduly emphasise any particular aspect of policy, but empower an agile social and economic response to changing circumstances. Regulation should protect the public, rather than vested interests, and facilitate development rather than prevent it.
- The debate around the future of work should continue on sensible terms, without the need to invoke an empty sense of crisis, and the needs of those who cannot adapt should never be forgotten.

Notes and References

- ¹ www.youngictexplorers.net.au/
- ² Science, Technology, Engineering and Mathematics (STEM) subjects
- ³ http://www.globalaccesspartners.org/Strata_Laws_Online_Consultation_Final_Report_Apr2012.pdf
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- ⁵ The G20 Agenda for Growth: Opportunities for SMEs Conference, Melbourne – Communique and Report, June 2014, <http://www.treasury.gov.au/Policy-Topics/Economy/G20/Events>
- ⁶ NSW Government, Jobs for NSW to drive 150,000 new jobs, 26 Aug 2015, <https://www.nsw.gov.au/media-releases-premier/jobs-nsw-drive-150000-new-jobs>
- ⁷ The Programme for International Student Assessment is a triennial international survey which evaluates education systems around the world by testing the skills and knowledge of 15-year-old students. Students from over 70 economies have participated in the assessment, the most recent results of which were published in 2012.
- ⁸ With no previous experience from having employees with experience from the automotive industry - Prof Göran Roos
- ⁹ Including the Australian industry structure with an over-representation of micro and small businesses, the relatively low education levels and low levels of global managerial experience of managers in Australian SMEs, the misaligned KPIs in universities, the focus on research in domains where there is no domestic lead customer or relevant business eco-system, etc. – Prof Göran Roos
- ¹⁰ <http://www.econlib.org/library/Enc/CreativeDestruction.html>
- ¹¹ <http://www.pc.gov.au/inquiries/current/workplace-relations#report>
- ¹² <http://www.businessdictionary.com/definition/contingent-worker.html>
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- ¹⁹ *FSC-CBA Older Workers Report: Results of the National Survey on Attitudes to Older Workers*; Commonwealth Bank, Financial Services Council, 2015; http://www.fsc.org.au/downloads/file/ResearchReportsFile/FSC_CBA_Report_270715_FINAL.pdf
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- ²¹ Deloitte, Building the Lucky Country Series; <http://www2.deloitte.com/au/en/pages/building-lucky-country/topics/building-lucky-country.html>
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- ²⁴ Deloitte (2014), Building the Lucky Country #4; *Get out of your own way: Unleashing productivity*; <http://www2.deloitte.com/au/en/pages/building-lucky-country/articles/get-out-of-your-own-way.html>
- ²⁵ The manufacture of Lego is now so completely automated that the first human eyes to see individual blocks belong to the child who opens the box.