

# Australia Adjusting: Optimising national prosperity

November 2013

**Australia Adjusting:**  
Optimising national prosperity

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### **About this publication**

Australia Adjusting

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### **About CEDA**

CEDA – the Committee for Economic Development of Australia – is a national, independent, member-based organisation providing thought leadership and policy perspectives on the economic and social issues affecting Australia.

We achieve this through a rigorous and evidence-based research agenda, and forums and events that deliver lively debate and critical perspectives.

CEDA's expanding membership includes 700 of Australia's leading businesses and organisations, and leaders from a wide cross-section of industries and academia. It allows us to reach major decision makers across the private and public sectors.

CEDA is an independent not-for-profit organisation, founded in 1960 by leading Australian economist Sir Douglas Copland. Our funding comes from membership fees, events and sponsorship.

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# Foreword



CEDA's major research and policy project for 2013 *Australia Adjusting: Optimising national prosperity*, is the culmination of several years' work.

It is being delivered at the perfect time.

Most agree that the peak of the resources boom has passed, which means as a country we must examine what can deliver the next source of economic growth and prosperity for Australia.

This, coupled with a new Federal Government, provides the perfect opportunity for renewed vigour and focus on a reform agenda that looks to the long term. The type of reform we haven't seen in Australia for 20 years.

Through this publication CEDA has brought together leading thinkers from across Australia from industry, government and academia to discuss and analyse a way forward.

CEDA has used these contributions to underpin the development of a proposed reform agenda.

As a result, CEDA is calling for a range of reforms that would form the basis of a National Productivity Policy to drive sustained productivity growth for our nation. It focusses on three key areas:

- Economic flexibility
- Capacity to innovate; and
- Maximising the skills and capabilities of our workforce.

CEDA has focussed on these three because together reform in these areas has the potential to deliver the results we need to drive productivity improvements.

I would like to thank the publication editors, contributing authors and CEDA advisory group for their rigorous and thoughtful contribution to this very important publication.

I hope you find this publication a useful resource and that we see the proposals outlined debated and discussed on the national agenda as a matter of priority.

A handwritten signature in black ink, appearing to be 'S. Martin'.

Professor the Hon. Stephen Martin  
Chief Executive  
CEDA

## INTRODUCTION

# Australia Adjusting: Optimising national prosperity

Professor the Hon. Stephen Martin  
Chief Executive, CEDA

Australia's long-running economic expansion has not come about by luck or good fortune. It has been the result of significant reforms introduced to position Australia for the future. Those reforms underpinned a two decade economic expansion. While the right policy settings have the potential to extend this for another decade, this outcome will not be achieved without major reforms aimed at improving the nation's international competitiveness.

In formulating its views for *Australia Adjusting: Optimising national prosperity* CEDA has drawn on its past research and sought the views of a number of Australia's foremost economists and public policy analysts. These included CEDA's Council on Economic Policy (CCEP) contributions from Dr John Edwards on *Australia 2022*, Professor Gary Banks AO on the microeconomic reform agenda, and Professor Greg Smith and Professor John Freebairn on tax reform. Research findings associated with CEDA's reports on Australia's population, its water resources and its energy options highlighted how the outcomes experienced by the nation in each area are a consequence of policy decisions and not economic inevitability.

*Australia Adjusting: Optimising national prosperity*, puts forward a comprehensive economic reform agenda for an open and adaptive nation to enhance its economic flexibility, improve its capacity to innovate and maximise the potential of its human capital. The recommendations form the basis of a **National Productivity Policy (NPP)** to drive a sustained improvement to Australia's productivity so that the nation can realise ongoing economic growth.

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## Acknowledgements

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In developing the NPP, CEDA wishes to acknowledge the input and expert advice from an advisory group comprising:

- Professor Michael Barber, Vice Chancellor, Flinders University;
- Dr John Edwards, Board Member, CEDA and Reserve Bank of Australia;
- Professor Stephen King, Professor of Economics, Monash University.
- Professor Glenn Withers AO, Board Member, CEDA and Professor of Economics, Australian National University;
- Professor Elizabeth Webster, Professorial Research Fellow, Melbourne Institute of Applied Economic and Social Research, the University of Melbourne; and

These distinguished experts provided guidance in the creation of the report and input into the final recommendations. However, the final report is entirely the responsibility of the individual authors and the CEDA editors, Senior Research Fellow Vince FitzGerald and Chief Economist Nathan Taylor.

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## Reform agenda for an open economy

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To remain competitive and economically strong, Australia will need to adjust to economic changes taking place now – and in the future – to ensure we have a knowledgeable, productive workforce and strong, innovative industries. CEDA’s research outlines a reform agenda that will address these concerns, and sustain Australia’s international competitiveness and productivity into the future. That reform agenda embraces economic flexibility, incentivising innovation and developing the nation’s human capital.

### Economic flexibility

The flexibility of Australia’s economy underpins the nation’s ability to respond to changing domestic and/or international circumstances. To improve its economic flexibility, Australia needs to initiate a series of microeconomic reforms to remove rigidities in the economy, address inefficiencies and uncompetitive elements of the tax system, reform the Federation, and adopt processes to deliver suitable levels of infrastructure as follows:

1. **Establish a National Productivity Policy (NPP)** to replace the National Competition Policy, providing a comprehensive review of regulation, pricing and licencing arrangements while phasing out industry subsidies among other important microeconomic reforms. The NPP should be supported by a new inter-governmental agreement that provides financial incentives for the states to undertake reforms.
2. **Reform the taxation system** to make it more efficient, internationally competitive, and supportive of economic growth. This should be done by reducing the corporate tax rate, eliminating tax breaks, lowering effective marginal tax rates of low income workers, and broadening and raising the GST.
3. **Reform the Federation** by re-allocating command over revenues and sharply re-defining roles to reduce overlap and duplication. This would clearly define which level of government is responsible for services; examine sharing the personal income tax base with the states and the horizontal fiscal equalisation between the states to increase incentives for states to develop their own revenue sources.



4. **Make infrastructure investment efficient** by having all governments publish long term plans for infrastructure development. For each investment, evaluation criteria would be established at the outset, enabling ex-post evaluation of whether its prospective net benefits (benefits net of costs) were achieved. This would enable value capture mechanisms to allow for greater contribution towards infrastructure to be made by those that benefit from it.

### Incentivising innovation

Along with a competitive environment that in itself provides incentives to become more productive, the capacity to innovate and to adopt innovations quickly is essential to raising productivity. Australia has tended to derive its comparative advantage from other sources in the past, so it will be a challenge for the nation to develop vibrant hubs of innovation. There is also evidence of a lack of management innovation in Australian small and medium enterprises (SMEs), relative to those in northern hemisphere advanced economies.

To improve the nation's capacity for successful innovation, Australia should:

5. **Increase incentives for innovation and its rapid adoption.** This should include government initiatives, including via funding criteria, to promote translation and diffusion of innovations.
6. Examine **income contingent loans** to help fund innovative activities by SMEs to address an area of comparative underperformance.
7. Establish the enabling framework for **research and development corporations**, similar to those in rural industries, for appropriate sectors of the economy.

### Capability and workforce development

A nation's most valuable resource is its people – its human capital – and how well it performs in productivity and raising living standards depends critically on ensuring that their capabilities and agility are developed to their full potential, and that we have adaptive and consultative workplaces. While Australia has had relatively high levels of participation and employment in recent times, there are segments of the community where skill development and participation are poor.

To maximise national human capital needs Australia should refocus and optimise education and training and develop a less adversarial and more flexible industrial relations environment by:

8. Developing a **unified, overarching policy framework** to guide the allocation of investment in education and training from early childhood to further education and training and tertiary education. This should examine the entire educational process and allocate investments in a targeted way, building on previous investments. It should also target underperformance, particularly children from disadvantaged groups in the population. At the other end of the spectrum, initiatives targeted at optimising the capabilities of the brightest children should be developed.
9. In the existing workforce, develop a **national workforce development plan** that aims to engage, and as needed reskill, underutilised groups in the workforce.
10. **Review Australia's industrial relations system** to make it less adversarial, more flexible, adaptive and responsive to the needs of individual sectors and workplaces. For example provide for more flexible negotiation of penalty rates in services such as retail, tourism and hospitality that operate on all days of the week, often day and night (and in some cases 24/7), year round.

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## Contributions

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*Australia Adjusting: Optimising national prosperity* has brought together leading researchers, thinkers and practitioners to provide an evidence-based assessment of what is required to ensure Australia's future prosperity and to contribute to the specific policy recommendations contained in this report.

### Economic imperative

In *Regaining competitiveness: The economic imperative*, CEDA Chief Economist, Nathan Taylor outlines how Australia has achieved something no other industrialised country has – 22 years of uninterrupted economic growth. This contribution also describes how the nation has lost international competitiveness during the mining boom and the importance of boosting national productivity levels.

In *An agenda to revive Australia's competitiveness*, CEDA Senior Research Fellow, Dr Vince FitzGerald articulates a National Productivity Policy (NPP). The NPP puts forward a wide range of microeconomic reforms, recommends changes to the tax system, makes suggestions for the Australian Federation, and initiatives to improve infrastructure delivery. It also makes recommendations to enable Australia to build additional sources of innovation potential and encourage the rapid adoption of innovations occurring elsewhere. Finally, it proposes a series of reforms that are designed to improve the capabilities of the nation and optimise human capital development and deployment.

### Economic flexibility

In *Addressing rigidities in the economy: Re-energising National Competition Policy reform*, Monash University Professorial Fellow in Business and Economics, Professor Graeme Samuel AC discusses Australia's history of successful economic reform and quantifies the benefits it has brought to the economy. While reform fatigue appears to have crept into Australia's political decisions, this is not due to lack of need. The contribution discusses the importance of revitalising the National Competition Policy; revitalising public private partnerships; engaging in tax reforms; and addressing health-care funding reform.

In *An efficient and competitive taxation system*, Australian Catholic University Adjunct Professor, Greg Smith, describes the fiscal challenges associated with increasing community expectations of public service delivery with growing international competition for financial and human capital. The contribution highlights the importance of funding expenditures out of taxes that fall predominantly on current consumption while lightly taxing drivers of future growth, such as savings, skilled labour and investment, the highly mobile factors of production.

The contribution discusses two strategies that seek to increase the competitiveness of the tax system and secure adequate revenues for the Government. The first strategy involves reducing the company tax rate to an internationally competitive level, replacing inefficient state taxes, and examining the effective taxation of human capital. The second involves broadening and increasing the rate of consumption taxation, reforming personal income tax to eliminate bracket creep and the recycling of funds that create middle class and business welfare, such as family tax benefits and industry support.

In *Adaptive and efficient federalism*, University of Queensland Business School Professor of Public Administration, Professor Kenneth Wiltshire AO, describes the trend towards centralisation in Australia's Federation and the overlap and duplication it has created. Arguing that Australia's vertical fiscal imbalance is the root cause of centralisation, the contribution proposes a number of options for redressing this problem. These options include a return to pre-World War II arrangements, where the states shared the income tax base; adoption of the Canadian regime where provincial income taxes are piggy-backed to the national income tax regime; or adoption of the German model where the major taxes are apportioned in an entrenched fashion reflecting roles and responsibilities. Finally, the contribution discusses how Council of Australian Governments (COAG) could be reformed so that it can be a vehicle for ongoing adaptability in Australia's federation.

In *Productivity enhancing regulatory reform*, RMIT University Professor of Institutional Economics, Professor Sinclair Davidson, describes how the incentive structure of regulators has resulted in regulation to avoid perceived risks, and potential rather than actual harm has contributed substantially to the growth in regulation. To rectify the situation, the contribution argues Australia should adopt private enforcement of public rules or 'bright line' regulation. Using evidence from a wide range of jurisdictions to argue that regulation matters but regulators do not, the contribution suggests that private parties who experience actual harm should be enabled to prosecute their cases in contrast to the existing regime, where regulators decide on their behalf.

In *Sustainable and efficient delivery of urban infrastructure: Imagining infrastructure futures*, KDR Gold Coast Managing Director, Vivienne King discusses how long term infrastructure plans benefit the public and private sectors to deliver infrastructure. The contribution discusses how existing funding mechanisms, such as the Building Australia Fund, can be adjusted to require regional or jurisdictional long term plans, giving more confidence to the private sector.

In *Delivering efficient public infrastructure: Some new trends*, Curtin University Professor of Sustainability, Peter Newman and James McIntosh Consulting Integrated Land Use and Transport Consultant, James McIntosh, describe the changing patterns of private and public transport and the key criteria that should underpin public infrastructure investment. This contribution describes new approaches to valuing infrastructure, including agglomeration benefits and avoidable land development costs. It also describes how value capture models could recognise the private benefits of the public provision of infrastructure and draw on those to help fund appropriate levels of delivery.

In *Smarter infrastructure*, IBM Digital Economy Strategist, Catherine Caruana-McManus details how technological improvements have the potential to improve how infrastructure performs. However, realising these improvements will require a significant change in the way in which infrastructure is priced and used.

### Incentivising innovation

In *Innovation Australia: How we measure up*, University of Technology Sydney Dean, Professor Roy Green and Senior Lecturer, Dr Danielle Logue, describe Australia's innovation system and how effectively it performs. They identify the key trends in innovation and where Australia underperforms relative to other nations. Finally, the contribution discusses Australia's poor ranking in a range of metrics that determine successful innovation, including poor managerial capabilities. The contribution discusses a series of actions that can be taken to address deficiencies in the national innovation system.

In *The innovation ecosystem*, Advanced Manufacturing Council Chair, Professor Göran Roos describes the forces that have influenced the global supply chain, particularly the role innovation plays in fostering sustained competitive advantage. The competitive pressures of globalisation are now encouraging consolidation of the global supply chain around innovative hubs that typically occur when groups of similar businesses are clustered together. Silicon Valley is a classic example. If Australia is to become a meaningful source of global innovation it needs to create innovation hubs. The contribution discusses a range of actions that could be taken to improve the situation, including changing the criteria for academic success to include industry relevant activities, lowering the corporate tax rate to internationally competitive levels, and adopting programs that encourage the adoption and dispersion of key enabling technologies.

In *Policy innovation for innovation: Income-contingent loans*, Australian National University Professor of Economics, Professor Glenn Withers AO and Australian Council of Learned Academies Research Fellow, Dr Nitin Gupta, describe how Australia's declining relative ranking in innovation could be due to our industry make-up. SMEs dominate in many Australian business sectors and these firms underperform in innovative activity. The contribution suggests that this is because SMEs have limited access to the capital required to fund innovative activities. Currently there is a policy gap in providing innovation funding to such organisations.

In *A proposal for industry-led innovation consortia*, Intellectual Property Institute of Australia Director, Professor Beth Webster, highlights that Australia's success in mining and agriculture is due to successful innovation that is built on global best practice. One source of national capacity to operate on the global frontier is through research and development corporations that have operated in the agricultural sector. These models of demand-driven research have provided the mechanism for government to facilitate demand driven research by forcing those that benefit to contribute to the research. Typically the funds come mainly from users, through farm levies, and with some support from government contributions. This model works best when an industry is dominated by many SMEs that individually completely internalise the benefits of research. The contribution discusses how government could develop the enabling institutional infrastructure so that interested industries can develop research and development (R&D) corporations.

In *Sectoral revolution through technological developments*, CSIRO Director, Dr Ian Oppermann, provides a case study on how the healthcare and legal professions could be significantly transformed with a comprehensive adoption of information and communication technology.

### Capability and workforce development

In *Key trends in Australia's workforce*, Australian Workforce and Productivity Agency Chair, Philip Bullock describes the shift to a services focused economy, increasing levels of education, and high levels of employment and labour market participation. The contribution discusses various scenarios for Australia's future and how these trends may continue to 2025. It also notes that while Australia's workforce compares well internationally, there are key demographics, geographic areas and segments of the community where the performance in workplace participation and skills development is below standard.

The contribution discusses how the National Workforce Development Fund represents a shift to demand-driven human capital development, and notes the importance of the latter in innovation and productivity. It also recommends changes to a range of initiatives to make them more flexible and appropriate for business needs, particularly small

and medium sized enterprises. Targeted co-funding can be used to address areas of deficiency.

In *Human capital and economic growth*, ACIL Allen Consulting Director Peter Noonan and Principal, Andrew Wade, separate the myths and reality behind the links between educational attainment and productivity. Arguing that broad-based competencies are more important than very specific skill sets, the contribution critiques current education policies.

The contribution discusses the benefits of an overarching policy framework stretching from early childhood to tertiary education and vocational training. Investment in human capital accumulation should be optimised by allocating it preferentially where it will generate the highest net return, for example with more emphasis on early childhood. Finally, it discusses how to improve the targeting of education investment via improved data collection.

In *The future of work*, IBISWorld Founder and Chair, Phil Ruthven, discusses some of the major forces that have been changing the way in which work is organised. This contribution observes that the amount of work undertaken in a lifetime has not fundamentally changed in hundreds of years – it is just spread over a much longer period. This trend is likely to continue as the pressures of outsourcing and globalisation create a more flexible workplace while the ageing of the population may result in people working less but for longer.

In *The Australian industrial relations system and the need for organisational agility*, Macquarie University Associate Dean (Research), Professor Paul Gollan and Research Fellow, Dr Senia Kalfa, discuss the importance of having adaptive workplaces in the global economy, and how agile workforces underpin international competitiveness. They also discuss Australia's historic approach to IR, and its antagonistic nature. The contribution recommends that the nation's IR system be reformed so that it is focused on employer/employee consultation rather than an adversarial approach. They discuss potential institutional arrangements fostering consultation that work in certain European locations and could be introduced into the IR regulatory framework.

SECTION

1.0

# The economic imperative: A national productivity policy

1.1 Regaining competitiveness:  
The economic imperative

[Nathan Taylor](#)

1.2 An agenda to revive Australia's competitiveness

[Dr Vince FitzGerald](#)







# 1.1

## Regaining competitiveness: The economic imperative

### Nathan Taylor



Nathan Taylor is the Chief Economist at CEDA where he is responsible for CEDA's research and policy agenda. He has been responsible for CEDA's research programs on public policy setting, examined the issues associated with Australia's population, and developed reform

agendas for Australia's healthcare, energy and water sectors.

Nathan has also authored the papers *Insuring Australia's cities against drought*, *Urban Water Security*, *Water Security: Water for the farm and City*, and *Australia's Energy Options: Policy choice not economic inevitability*.

Nathan has held a series of policy roles at the Reserve Bank of Australia, the Chamber of Commerce and Industry of Western Australia and the Western Australia Local Government Association and others. He is currently undertaking a PhD *Quantifying the value of water reliability* at the University of Melbourne and is the author of the behavioural economics blog *The Writings of a Naked Ape*.

Over the last 22 years Australia has achieved something that no other industrialised country has done: avoided a serious economic downturn and experienced continuous economic growth. During Australia's uninterrupted expansion of gross domestic product (GDP) nominal wealth has quadrupled, real GDP has doubled, and both GDP per head and employment have increased by more than half. The fundamental question facing Australia is whether it can reasonably expect to continue to experience ongoing economic success for the next decade and beyond.

A simple projection, conducted for CEDA by Dr John Edwards, suggested that, all going well:

“In 10 years Australia's population will reach 26.3 million, GDP in nominal dollars will be just short of \$2.5 trillion (and in today's dollars around \$1.8 trillion), and GDP per head in today's dollars will be \$68,400 compared to \$59,000 now. There will be 13.34 million employees. Nominal net wealth will have increased by three quarters to \$14 trillion – on average, half a million dollars each.”<sup>1</sup>

This optimistic projection, based on economic fundamentals, suggests that Australia is capable of achieving another decade of continued growth, absent serious external shocks. The nation's economic expansion has not occurred by chance alone but due to robust policy settings that enabled and incentivised the nation to respond to a range of hostile circumstances. These have included the Asian financial crisis, the 2001 technology bubble collapse and subsequent advanced economy recession, and the global financial crisis. Australia has also managed to digest the most sustained and pronounced mining boom the nation has experienced through effective management of fiscal and monetary policy. However, the changing nature of the mining boom will challenge the capacity of the nation to adjust.

For Australia to realise such a scenario will require an improvement in the non-mining sectors, where there are significant concerns that Australia has lost its competitive edge. If these other sectors are not able to compete internationally, Australia will experience a relative decline in national wealth as the stimulus from the terms of trade wanes. To remain competitive and economically strong, Australia needs policy frameworks that allow economic flexibility, incentivise innovation and build the workforce capability of the nation.

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## The basis of Australia's economic success

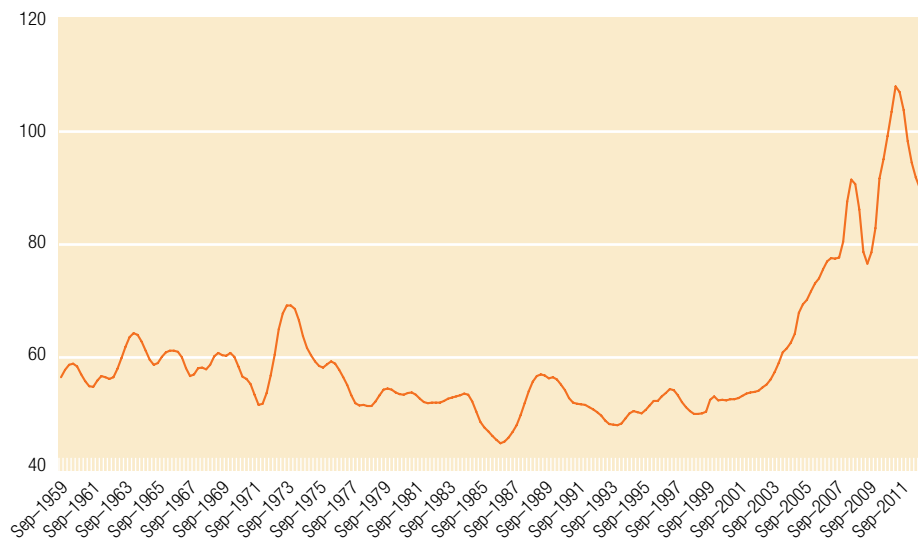
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Australia's recent growth in prosperity has been underpinned by a surge in demand for resources arising from the industrialisation occurring in the developing world, particularly China. The uninhibited investment expansion of China from 1985 to 2011 was particularly advantageous for Australia as it was energy and metals intensive. Chinese demand has represented a high proportion of world growth in demand for metals and energy since 2001 and virtually all the global growth in some metals since the global financial crisis of 2008. A consequence of China's rapid industrialisation and urbanisation has been the most prominent and prolonged improvement in Australia's terms of trade on record, driven by increases in the export prices of coal and metal ores.<sup>2</sup>

The phase of Chinese growth representing industrialisation catch-up effectively ended in 2011.<sup>3</sup> From 2012 onwards, the Chinese Government has been endeavouring to engineer a new phase of economic growth that has a more balanced domestic demand profile between consumption and investment. This policy change will result in less energy and metals intensive economic growth. Commodity prices have fallen significantly from their peaks, although they still remain at relatively elevated levels.

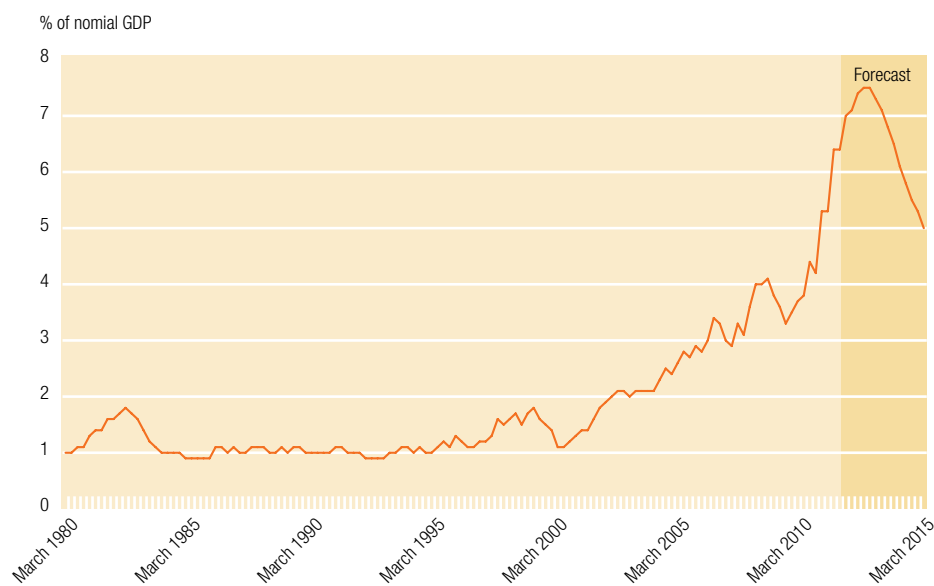


**FIGURE 1**  
**AUSTRALIA'S TERMS OF TRADE**



Source: ABS Cat. No. 5206

**FIGURE 2**  
**ENGINEERING INVESTMENT**



Source: ABS, ANZ

Australian resource companies have been planning for declining commodity prices, as reflected in forecasts for scaled-back investment plans. It would appear that Australia has reached, or even passed, the peak construction activity associated with the commodities boom.

There are three distinct phases to an economy's response to a resource stimulus and Australia is at an important transition point with serious consequences for the Australian economy. The first is a price phase, when commodity price and terms of trade improvements dominate; the second is a construction phase, when high levels of business investment occur to take advantage of high commodity prices; and the final phase is one of higher ongoing production as the earlier investment comes on stream. While these phases can overlap, they have very different influences on the Australian economy.

Over the course of the last decade, Australia's prosperity has been supported by the first two phases: high prices for resources and record levels of business investment. These first two phases of the mining boom provided high levels of income and employment for many people, higher government revenues, and generally, substantial benefits for all Australians. However, reaching the peak level of construction means that this phase of the mining boom will no longer underpin improvements in prosperity.

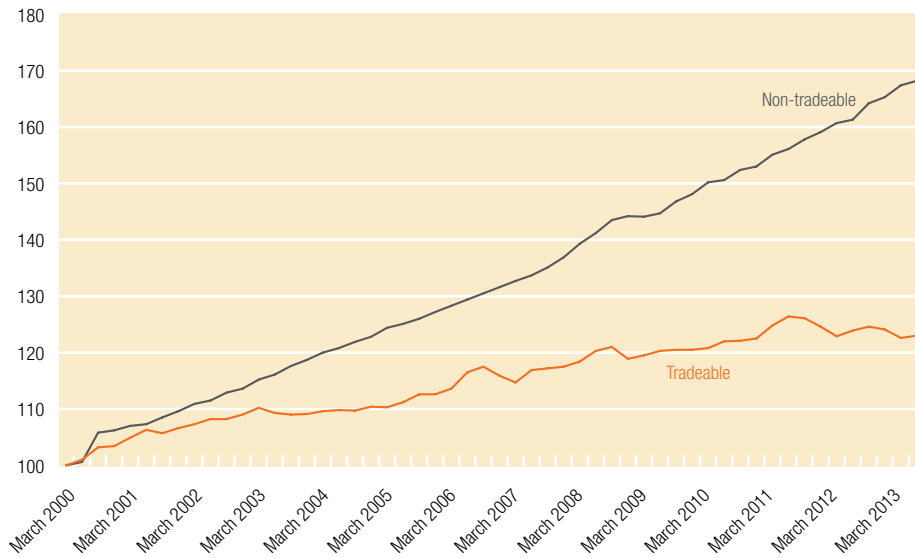
The relatively high level of foreign ownership over Australia's resource companies, operating in a highly capital intensive industry, means that the main benefits to Australian incomes generated from the resources sector come from royalties, and corporate and other taxation, which governments are able to pass on via increased benefits and lower personal taxation. These revenue flows will be much lower in the production phase than during the terms of trade and investment phases – because tax deductions arising from the investment phase and lower profitability due to lower prices and higher costs will reduce corporate tax revenues. The production phase of the mining boom will therefore not have the same benefit to government revenue and to the community that the earlier phases did. This will significantly tighten fiscal constraints on what government can do and it will be imperative that community expectations about government service levels be linked to, and constrained by, the community's willingness to pay, via taxes.<sup>4</sup>

The tourist sector provides an excellent example of how the terms of trade and the exchange rate have influenced the competitiveness of the non-resource sectors of the economy. During the reforms of the 1980s and 1990s which opened up the Australian economy to the world, the tourist sector became a major domestic employer and a significant source of foreign income. However, the mining boom, and the consequential high Australian dollar, made the nation a relatively expensive destination for both domestic and international tourists. Not only did foreign tourists go elsewhere, Australians also took more overseas holidays. The large level of mining investment also raised the cost of the goods and services that input into the tourist sector. For example, with full employment in the economy, and strong demand from the resources sector, the cost of labour became a significant burden for tourism operators.

If Australia is to experience ongoing economic prosperity it needs to find new sources of employment and income. This may be a challenge for the nation as many of the productivity gains and expanded export opportunities developed outside of the mining sector during the 1990s have declined. Further, the parts of the economy not exposed to international competition have experienced rapid price rises, undermining the competitiveness of trade-exposed sectors and limiting their capacity to act as sources of innovation. As the Australian dollar falls, it will assist the price competitiveness of those trade-exposed sectors, but it will be no panacea. Countries do not become rich by devaluing their currencies, but by constantly improving efficiency and productivity and, underpinning those, their performance in innovation.

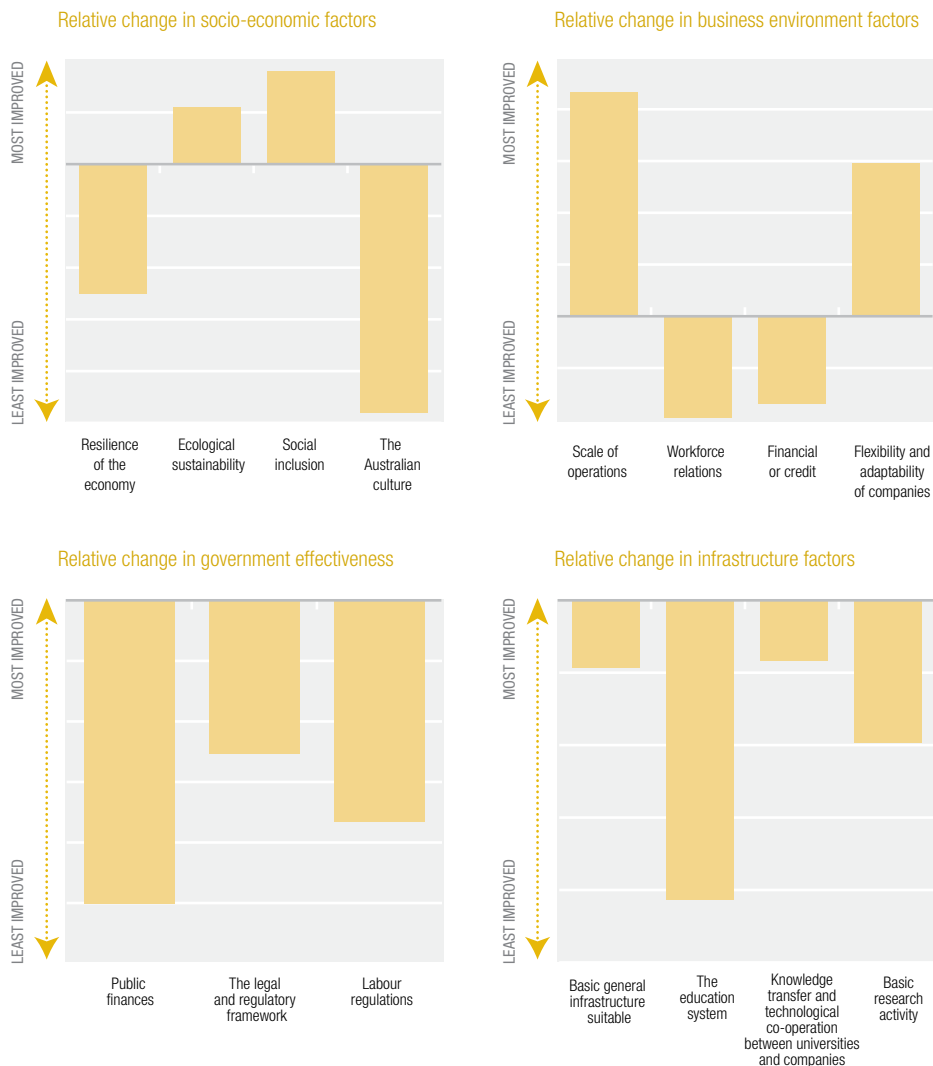
To examine whether the prosperity generated by the mining boom allowed poor business practices and poor quality government regulations to undermine international competitiveness, CEDA undertook a survey of its membership, in conjunction with the Australian Council of Learned Academies, examining Australia's sources of comparative advantage. This survey found that many of the factors that enabled the country's success had declined over the course of the past decade. While there were some positive signs, with the scale of operations, business flexibility, and a range of cultural and environmental issues improving over the last decade, there were also significant declines in a number of other areas. These were, in order of significance: public finances, labour regulations, the legal and regulatory framework for business, the education system, workforce relations, basic research capability, the availability of credit,

**FIGURE 3**  
**TRADEABLE VERSUS NON-TRADEABLE PRICES, ACCUMULATION INDEX, MARCH 2000 = 100**



Source: ABS Cat No 6401

**FIGURE 4**  
**PERCEIVED CHANGE OVER THE PAST 10 YEARS IN THE FACTORS ENABLING AUSTRALIA'S COMPARATIVE ADVANTAGE**



Source: ACOLA CEDA Survey on Australia's sources of comparative advantage.

infrastructure, the speed with which innovations are adopted and transmitted between academic institutions and business, and the overall resilience of the economy.

Part of the decline in Australia's international competitiveness in non-resource based sectors may prove transitory, improving as investment related to the resources sector declines. In terms of the tourism sector, it remains to be seen as to whether the sector can rebound as the Australian dollar falls in conjunction with the terms of trade declining – or whether increasing global tourism competition means it is not as viable a source of employment and national income as it once was.

If Australia is to achieve another decade of growth it needs to put in place the policy frameworks that will enable economic flexibility, even as the level of global competition intensifies.

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## An increasingly contestable economy

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The rapid industrialisation of China, and that of other significant developing economies such as India, has benefited Australia over the past decade. However, over the longer term, this industrialisation will result in much higher levels of international competition in areas of Australia's historical comparative advantage, particularly as technology continues to redefine what are tradeable and what are non-tradeable goods or services.

In common with other developing economies, the relative competitive advantage Australia has enjoyed from its highly educated workforce is diminishing as the global supply of skilled labour increases. In 2002, the total number of science, technology, engineering and mathematics (STEM) first university degrees awarded in Asia was just over one million, with almost half a million in China alone and a further 176,036 in India.<sup>5</sup> By 2010 the total STEM degrees awarded in China had risen to 2.6 million, with the figure anticipated to rise to 3.5 million by 2015.<sup>6</sup> China alone will produce more STEM degrees in 2015 than all of Asia did as first degrees in 2002. India is experiencing similar growth trajectories in higher education.

The increasing numbers of highly educated people in the world will inevitably increase the international competition for the goods and services they produce. The increasing global competition will be felt more strongly in Australia as this nation has been experiencing a decline in the quality of its educational system relative to other countries. While many developing economies started from a low education base – as an example, South Korea had to invent the vocabulary of science and mathematics in Korean before it could be taught – concerted efforts have resulted in this initial gap with developed countries' education systems being reduced. Given those developments and Australia's own lacklustre performance, this country has slipped from third in international testing of students' achievement levels in 2000 to eighth in 2009.

Technological advances in information and telecommunications in particular, are radically reducing the tyranny of distance and making the world more connected. These information and communications technology (ICT) improvements are continuously redefining what goods and services need to be produced locally and what can be outsourced to other countries. Increasing global contestability allows more and more goods and services to be produced anywhere in the world, which is good for consumers, but it does reduce the prosperity of workers and also individual nations that are not competitive.

Consider the case of the manufacturing sector, which has a long history of production that was once domestic being outsourced to low-cost destinations, typically developing economies. Recent reductions in the costs of inputs (for example the US, with a lower exchange rate and cheap gas supplies) have also resulted in some manufacturing plants being established or regaining business in parts of the developed world. However, regardless of where manufacturing takes place, the fact that it can be relocated reduces the bargaining power of labour in the sector.

During the mining boom, Australia was in an unusual position in that the sources of employment growth were also highly paid. For many other developed economies, the main areas of employment growth during the 2000s were in relatively low-paid sectors such as healthcare. Given the growth in availability of highly skilled labour globally and ongoing ICT development, contestability will increasingly be a challenge for Australian workers in all sectors.

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## Optimising prosperity to 2025

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The reforms introduced in the 1980s and 1990s opened up the economy to the world and improved Australian economic flexibility and competitiveness and incentivised firms in many sectors to seek business internationally. In some sectors, Australia became a leading competitor as a consequence. Consider the case of higher education. A series of reforms reoriented the sector from a focus on receiving aid to engaging in innovative trade and it became one of Australia's leading export earners.<sup>7</sup> The economic policy was important to incentivise the education sector to seek foreign income and fully realise its potential in the competitive marketplace.

During the 1990s the main contribution to gross domestic income (GDI) per capita was productivity growth which constituted 60 per cent of the total improvement in real income experienced over the decade. However, during the 2000s the key driver of GDI per capita was capital accumulation, which added half of all improvement experienced over that period while productivity growth added just 3.5 per cent to GDI per capita.

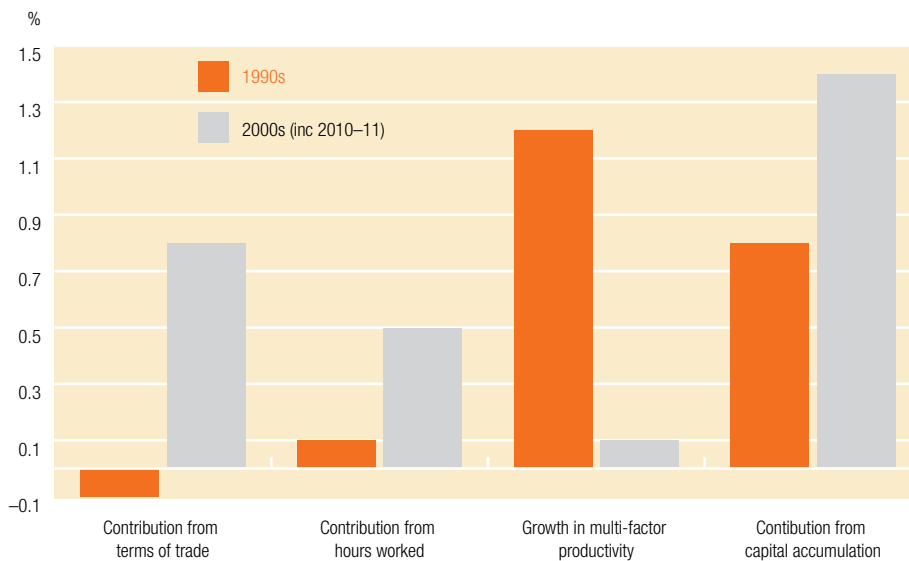
Somewhat ironically, the end of the period of elevated terms of trade may result in an improvement in mining productivity as new investment subsidies and higher output associated with past investment comes on stream. This is because to some extent the nation's recent poor productivity performance has been a result of cyclical factors, climatic influences and the pronounced build-up in capital stock associated with business exploiting these favourable international conditions. Leaving aside agriculture, mining, and certain utilities from market sector multi-factor productivity, there have been significant lifts in Australia's recent productivity performance, from a decline of one per cent to a decline of just 0.3 per cent. However, it is still a decline in productivity growth on that basis.

Over the longer term, the key determinant of improvements to national income growth and international competitiveness is productivity. As Paul Krugman has famously stated:

“Productivity isn't everything, but in the long run, it's almost everything. A country's ability to improve its standard of living over time depends almost entirely on its ability to raise its output per worker.”

Put simply, productivity is the nation's output divided by its inputs. It measures the ability of a nation to produce goods and services and has a strong relationship with a nation's income per capita. What tends to be forgotten in the public debate about

**FIGURE 5**  
**CONTRIBUTIONS TO GDI PER CAPITA GROWTH**



Source: Productivity Commission presentation to the CEDA Council on Economic Policy

productivity is that it is important because it underpins collective improvements in national standards of living. Income per capita is a broad proxy for improving quality of life, although it is not the only factor. Other factors, such as the quality of the environment and the equity of the income distribution also contribute. However, national prosperity allows for important social, environmental and equity programs to be undertaken.

Productivity improvements result from three things: innovation in economic activity, resources being allocated to their most productive use, and dynamic efficiencies arising from rapidly implementing innovations. The decisions underpinning productivity growth are intrinsically linked with the decisions of individuals in terms of their daily activities and where they decide to allocate their resources, their labour and their physical and financial capital. The choices individual people make, be they in business, the not-for-profit sector or in government, will all have an influence on the national capacity to produce.

It is also important to note that while productivity is important, it not something that government can directly influence. Instead, governments have an indirect but important influence over national productivity growth through three main channels. These are:

- Providing the right incentive structure to create an environment conducive to dynamic efficiency and innovation;
- Nurturing the capabilities of the nation; and
- Allowing flexibility in the economy through reforms in workplace and other regulation.

This report outlines how the government and industry can work together to address these three channels for improving national competitiveness. It presents a reform agenda to help Australia achieve ongoing economic prosperity as the terms of trade normalise.

Small changes in productivity growth rates, if sustained, have very significant implications for the nation's standard of living in the long term. Consider the changes in assumed labour productivity growth projected in the first Intergenerational Reports and the third a decade later. A revision of just 0.15 per cent per annum in assumptions about labour productivity growth rates represents a difference of \$7000 per capita by 2050 in real dollars. If, on the other hand, productivity growth were raised to the two per cent per annum achieved during the 1990s, per capita income would be \$18,000 higher and the Australian economy 20 per cent larger by 2050.

The reforms of the 1980s and 1990s that positioned Australia well for two decades of economic growth typically represented catch-up policy. For example, the Australian dollar was floated more than a decade after the US abandoned the fixed exchange system dating from the post-war Bretton-Woods agreement. Likewise, other developed countries had introduced broad-based consumption taxes decades before Australia adopted the Goods and Services Tax. Australia is now one of the most prosperous nations in the world but will need to develop innovative policy approaches to the challenges it now faces.

To underpin improvements to national prosperity, any improvement in Australia's productivity needs to be sustained and not merely cyclical. Australia needs to develop a long term National Productivity Policy that addresses rigidities in the economy, incentivises innovation and improves the capability of its human capital. This cannot be a one-off reform agenda, but needs to be a dynamic ongoing program that helps the nation adapt to domestic and global circumstances as they emerge and puts in place world-leading policy responses.

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## 1.2

# An agenda to revive Australia's competitiveness

## Dr Vince FitzGerald



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Vince is also a Director of ETF Securities, The Conversation Media Group and the Goulburn-Murray indigenous community's Kaiela Institute, President of the Victorian State Council of the Australian Institute of Company Directors and a member of its National Board, an Australian National University Council member and a Trustee of the Finkel and Tuckwell Foundations.



## 1. What we need to focus on

This chapter sets out an agenda of reforms designed to reposition Australia to compete and prosper in the more difficult post-mining boom environment.

In essence we need to undertake another wave of microeconomic reforms such as those that successfully raised our national productivity growth over the decade from the mid-1990s onwards. Of course, there is also need for macroeconomic policies to set a conducive environment for that endeavour. Monetary and fiscal policies need to be complementary, and to strike the right balance between the need to support the economy, on the one hand, and the need to strengthen the Budget, on the other.

Monetary policy needs to guard against inflation while our exchange rate declines in response to the post mining boom decline in our terms of trade. Fiscal policy needs to return the Budget to surplus in a reasonable timeframe, in order to restore a buffer against future shocks, such as we were fortunate to have when the Global Financial Crisis (GFC) unfolded. Future surpluses will also contribute to the finance of investments that will underpin continuing growth. But the speed of that adjustment needs to be set so as to maintain positive growth in the short to medium term.

But this chapter will not canvass further the desired setting of macroeconomic policies. It focuses on the *microeconomic* reforms that we need now. To maintain growth and improvement in our living standards, we need to raise productivity growth and sustain it – and so to become more competitive in all industries, particularly those outside the resources sector, which lost competitiveness during the period of the mining boom and the associated high exchange rate.

A very high proportion of our economy outside mining is in the services sector, both public and private. Agriculture and manufacturing are smaller, but they are also important sectors that can do better in a lower exchange rate environment if they too lift their productivity and competitiveness. Indeed the mining sector itself did not perform well in raising productivity in the good times, and has the same challenge – particularly given the development of competing supplies in a number of other regions in response to the high commodity prices of the boom period.

Broadly stated, to lift productivity growth and competitiveness, and therefore underpin growth and improve living standards, we need to:

- Make **our economy more flexible and efficient**, including in how government works and how it raises taxes and spends;
- Lift and better prioritise and fund **infrastructure investment**;
- Sharpen the **incentives for innovation**; and
- Lift the **capability and adaptability** of our people and workplaces.

### How this chapter relates to the contributed chapters

In setting out an agenda of reforms designed to revive Australia's competitiveness in those ways, this chapter draws on the insights of the contributed chapters. Each chapter in this report highlights a very important issue that needs to be addressed if Australia is to lift its productivity and competitiveness, and puts forward for debate some ideas on what might be done to address those issues. In articulating the agenda set out below, regard has been given to those ideas, but they have not been simply taken in.

### A note on implementation of reforms

Some reforms will obviously be politically difficult, but Australia has made very significant reforms in the past that were controversial and affected many people, for example the 25 per cent tariff cut or the introduction of the GST. The ingredients of success in implementing reform that can be learned from those past experiences include these:

- Good research that demonstrates the net benefits of a reform;
- Clear and widely disseminated explanations of the nature of the reform and its benefits, as well as what adjustments it will involve, and active debate;
- Courageous and articulate political leadership;
- Preferably sharing of the adjustment costs widely in the community, rather than one group, which may mean making a number of reforms together. Adjustment assistance may be warranted;
- Ensuring that over time, the net benefits are widely shared;
- Careful planning and phasing of reforms, so that benefits begin to flow to more than offset adjustment costs; and
- Where both major levels of government need to be involved, presenting strong incentives to the states, as with the National Competition Policy (NCP) payments.

It is beyond the scope of this CEDA volume, and this chapter in particular, to canvass in any detail how such ingredients might be drawn upon in deciding how to implement the agenda of reforms that we need now to revive Australia's competitiveness, but it is intended as a contribution to the first two points above. This chapter's particular role is to describe the component reforms and to outline briefly why they must form part of that overall agenda.

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## 2. Making our economy more flexible and efficient

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In his chapter, Graeme Samuel reminded us of the major reform achievements of the past, particularly the NCP under which many microeconomic reforms were implemented between 1995 and 2005, with the effect of significantly raising productivity growth over that period. That reform wave exhibited all the ingredients of success outlined above, and a success it was.

### Renewed national microeconomic reform

But there is much more to do, as Graeme Samuel argues. There is a long 'to do list' of microeconomic reforms, small and large, that still need to be addressed – particularly those articulated in considerable detail by the previous Productivity Commission, Chairman, Gary Banks in a speech given in November 2012.<sup>1</sup> That 'to do list' is actually a number of lists, under the headings of incentive policies, capability policies, flexibility policies and taxation reform. Sub-headings include human capital and innovation reforms, and infrastructure reforms. All of those areas where reform is needed, and others raised by Graeme Samuel, are addressed in the reform agenda outlined below.

### Reform No. 1: Revive the National Competition Policy as a National Productivity Policy (NPP) supported by a new intergovernmental agreement

Very many reforms that are needed can only be successfully undertaken by the two major levels of government working together, as they did with the NCP. Reforms to be undertaken under a new inter-governmental agreement should include at least the five below, all of which are needed to make our economy more efficient, flexible and competitive:

1. A comprehensive regulatory review across all areas, with a view to culling unnecessary regulations, particularly where market solutions or private enforcement will serve the desired objectives. Where regulation remains warranted, simplify and ensure consistency across jurisdictions, to reduce compliance costs.
2. Specifically, reform price regulation of infrastructure-based services, particularly energy supply, including introducing more cost-reflective pricing of these services, in particular to help manage peak loads in electricity supply. Apply cost-reflective pricing more generally, for example in road transport (including congestion pricing) and water supply.
3. Review overly restrictive licensing and self-regulation by various professions and ensure it is liberalised on a social net benefit test.
4. Phase out restrictive policies in areas such as coastal shipping and pharmacy that have a significant net social cost.
5. Review selective industry subsidies against a social net benefit test.

For the NPP to match the success of the NCP, one essential ingredient, to incentivise the states to carry out committed reforms, would be an equivalent of the NCP payments. Also, to ensure the accountability of *both* levels of government, an independent auditor of progress (ideally the Productivity Commission) should be given the roles of assessing achievement against commitment and reporting publicly on progress and expected net benefits.

### Taxation reform

Greg Smith sets out a compelling case to undertake a major reform of our taxation system to recognise that Australia is in a global competition for capital and indeed for highly skilled labour. We also tax more heavily than is optimal the activities that contribute to future growth, notably saving. Ideally we should be funding current government expenditures out of taxes that directly or indirectly fall on current consumption rather than on saving, investment and innovation activities – that is, on the activities that contribute to future growth in productivity and improvement in living standards for the community as a whole.

We need a taxation system that is equitable and delivers enough revenue to fund what government needs to do for the community, consistent with what the community is willing to pay in taxes. It must also recognise the cold reality that Australia is very dependent on capital from abroad if we are to grow, and is in competition for it. Much the same is true of highly skilled labour, which is also internationally mobile. Indeed the tax system needs to encourage participation in work at all levels. To reduce the marginal tax rates that pose disincentives to participation requires broadening of tax bases – by removing exemptions or tax breaks that are loosely referred to as middle class or business welfare (some of these are expenditures rather than tax breaks).

### Reform No. 2: Reform the taxation system to make it more efficient, internationally competitive, and supportive of economic growth

Undertake another major review of the tax system. The aims of the review should be to:

1. Reduce the company tax rate over a period to an internationally competitive level, noting that for Australian shareholders, the company tax rate is a withholding rate only. Under the imputation system, they pay tax on the corporate income at their own marginal rates. Hence there would be no material effect on the progressivity of the tax system.
2. Broaden the tax base by culling tax breaks (many of which are highlighted in the annual *Tax Expenditures* statements) that provide middle class welfare and business welfare. As many of these are predominantly enjoyed by middle and upper income people, the higher marginal tax rate could be lowered broadly to compensate, to avoid materially affecting the progressivity of the taxation system.
3. Reduce effective tax rates faced by lower income people in deciding on participation in work (these are a function of both the tax system and the means-testing of various transfers).
4. By reducing the taxation of saving and broadening the base of the GST, and possibly raising the rate, fund the elimination of inefficient and/or regressive state taxes and more closely align the funding of current government expenditure with taxes that fall directly or indirectly on current consumption. Compensatory changes to transfer payments may be required for some groups to maintain equity.

These reforms, particularly three and four, will require careful examination of prospective incidence across the community of both the tax changes themselves and the distribution across the community of the net gains in national income over time from the entire package of reforms, taking into account any adjustment assistance or compensatory transfers (as were used when the GST was introduced).

### Reform of the Federation

The establishment of a new National Productivity Policy involving both major levels of government working together in a more active and co-operative Council of Australian Governments (COAG) would be a good start towards addressing the increasingly dysfunctional aspects of how our Federation has been working over recent decades. The Commonwealth has become increasingly deeply involved in areas that are primarily the responsibility of the states, notably education (particularly school education) and healthcare (particularly hospital care). As highlighted in the chapter by Ken Wiltshire, there has been inefficient overlap, duplication, and micro-management by officials remote from service delivery in these two and other areas.

A distinct stream of reform is therefore needed to make the workings of our Federation, and in particular of the public sector itself (a large part of our economy), more efficient. Its focus should include the reduction of areas of overlap and duplication between governments, and a review of how tax-raising capacity is shared that increases state fiscal independence and accountability, and reduces Australia's extreme vertical fiscal imbalance (as between where command over revenues lies compared to where responsibility for expenditure lies).

A reform with those two intertwined areas of focus would go a long way towards addressing the presently dysfunctional aspects of how the Australian Federation functions. A third area of focus could be our system of horizontal fiscal equalisation. Some such system is needed in our Federation, but the present very comprehensive system is at an extreme among federations around the world, sets poor incentives for the states to improve in service delivery and revenue raising and has been under strain during the commodities boom as royalties collected by resource states were relatively quickly equalised away.

### **Reform No. 3: Reform the Federation, including reallocating command over revenues and sharply redefining roles to reduce overlap and duplication**

This reform would:

1. Review areas of overlap and duplication between levels of government, with a view to re-defining more clearly and sharply which level is responsible for what, both in human services (particularly healthcare and education) and in all other areas, for example infrastructure regulation. This review would address how to achieve an appropriate balance between responsiveness to local needs and conditions, competitive tension in improving efficiency in service delivery, and consistency across the nation, especially in regulation affecting business.
2. Examine the sharing of the personal income tax base with the states (under continuing centralised collection arrangements), with offsetting reductions in grants and in Commonwealth involvement in areas of primary state responsibility. The aim would be to improve the fiscal independence of the states (reduce the vertical fiscal imbalance), increase the states' accountability to their own electorates and help reduce overlap and duplication.
3. Examine the present system of horizontal fiscal equalisation with a view to simplifying it and increasing incentives for states to develop their own revenue sources and improve efficiency of service delivery.

### **Efficient infrastructure planning, prioritisation and funding of investment**

Notwithstanding the improvements brought about by the establishment of Infrastructure Australia, Australia has been under-investing in infrastructure and allocating investment sub-optimally. As a result, we have forgone significant potential productivity gains. Public investment in infrastructure has been restrained by perceived budget constraints – and confusion between investment (the capital outlay) and recurrent expenditure (the accruing costs of interest, depreciation, maintenance and operating expense once the investment is in place).

The process of prioritising and allocating the available budget for public investment has not had sufficient regard to maximising overall social benefit/cost, and the process at the political level has been less transparent than desirable. The potential for the private sector to make a bigger contribution to infrastructure provision has also been underutilised, partly because of lack of clarity and stability in long term planning by public authorities. There is also unused potential to add to the range of mechanisms for beneficiaries to contribute to funding.

### Reform No. 4: Make infrastructure investment more efficient

This reform would involve the adoption by all Australian governments of:

1. Mechanisms for the establishment of published long term plans for infrastructure development that:
  - Are comprehensive and infrequently revised; and
  - Utilise consistent social benefit/cost (or social rate of return) to prioritise and allocate funds to investments transparently, to yield the greatest benefit from the overall investment budget.

This would increase private sector confidence and willingness to participate.

2. For each investment, evaluation criteria would be established at the outset, enabling ex post evaluation of whether its prospective net benefits (benefits net of costs) were achieved. Indeed this is a discipline that could well apply to *all* proposals for new government expenditure programs, current as well as capital, for example in human services.
3. The reform would also examine innovative mechanisms for increasing the potential for private beneficiaries to contribute to the costs (on the user-pays principle), in particular so-called value capture mechanisms.<sup>2</sup> For example if a prospective transport infrastructure investment would have the effect of raising nearby land values, a charge resembling an increment to local government rates could capture some part of that (tolls are another, more familiar, user-pays mechanism).

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## 3. Stimulating innovation and its adoption in the economy

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Along with a competitive environment that in itself provides incentives to become more productive, the capacity to innovate and to adopt innovations quickly is essential to raising productivity. Innovation and the ecosystems that stimulate it are critical to influencing participation in global supply chains, which are tending to consolidate around hubs or clusters that foster it.<sup>3</sup> Sustained capacity to innovate, and to adopt and apply innovations, is becoming a primary source of sustainable comparative advantage and a key driver of improvements in efficiency at both industry and economy-wide levels and hence in living standards for the community as a whole.

Australia has tended to derive its comparative advantage from other sources in the past, so it will be a challenge for us to develop vibrant hubs of innovation. There is also evidence of a lack of management innovation in Australian small and medium enterprises (SMEs), relative to those in northern hemisphere advanced economies.

Australia's relative performance in adoption of innovations has been in continuing decline.<sup>4</sup> There are good incentives for basic research in universities and other institutes, but the incentives are weak for undertaking applied research in those critical concentrations of intellectual capacity, and for translation of research into productivity-raising improvements to production and other business processes.

Many of our industries are dominated by SMEs that, in addition to the difficulties inherent in their scale, have difficulty in obtaining funding for innovation activities. Given that there are externalities from innovations (for example consumers enjoying better and/or cheaper products), this gap could potentially be removed using loans mediated by government where repayment is contingent on income flowing from the activities.<sup>5</sup> Another issue for industries dominated by SMEs is that it is difficult for any one firm to

internalise the commercial benefits. Industry-led consortia that involve all or most firms able to benefit from innovations contributing to their funding can facilitate higher levels of user-driven applied research that can then be used industry-wide to raise productivity. However, these would also need government mediation.<sup>6</sup>

#### Reform No. 5: Increase incentives for innovation and its rapid adoption

This reform would comprise the following elements:

1. Government initiatives, including via funding criteria, to encourage universities to give significantly greater weight, in the research-related metrics for academic advancement, to performance in achieving the adoption, translation and diffusion of innovations (as has been implemented in Europe and the United States).
2. To help fund innovation activities by SMEs, exploration of the possible scope for utilising income-contingent loans, repayable from income generated by successful innovations, for example from a funding pool that is recycled instead of once-off outright grants.
3. To assist in creating institutional arrangements to enable the prospective users of applied research to drive it and to contribute to its cost, government creation of enabling frameworks for the setting up, in industries where the conditions are conducive, of research and development (R&D) corporations similar to those in rural industries. Relevant industries are ones in which there are a number of firms, producing broadly similar products, that could all beneficially adopt innovations (for example food processing and some other manufacturing sectors; or parts of biotech).

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## 4. Lifting the capability of our people and workplaces

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A nation's most valuable resource is its people – its human capital – and how well it performs in productivity and raising living standards depends critically on ensuring that their capabilities and agility are developed to their full potential, and that we have adaptive and consultative workplaces. In the post-commodities boom environment we face, these issues are becoming even more critical. In its employment patterns, Australia has been shifting to a services focused economy, many sectors in which require high levels of education.<sup>7</sup>

While Australia has had relatively high levels of participation and employment in recent times, there are segments of the community where skill development and participation are poor. To maximise employability, the development of our human capital needs both to focus resources on those segments and be more flexible and demand-driven, for example better matched to the needs of businesses, particularly SMEs. That will also help lift our performance in innovation.

More generally in our education and training systems, there is too much emphasis on very specific skills.<sup>8</sup> In building the capability to be productive, adaptive and agile in the workplace, broad-based competencies are more important than specific skills. A unified overarching policy framework is needed, covering the whole range from early childhood education to further education and training and tertiary education. This would allow our investment in human capital to be allocated across that range according to where the incremental payoff will be greatest, for example early childhood, where the foundations are laid (this obviously requires improved data collection).

How well we perform in raising productivity depends not only on the quality of education and training of those people, but on how they relate and interact to be productive as teams in workplaces. Flexibility is becoming more and more important as workplaces and workers are coming under pressure to respond to the challenges of globalisation and outsourcing. To become more flexible and adaptive our workplaces need to remain productive and competitive, with industrial relations arrangements becoming more enterprise-focused, less adversarial and more co-operative.

### **Reform No. 6: Refocus and optimise education and training and develop a less adversarial and more flexible industrial relations environment**

To lift Australia's performance through developing our human capital to its fullest capabilities, particularly our young people, reform needs to encompass these elements:

1. Develop, in co-operation between the Commonwealth and the states, a unified, over-arching policy framework to guide the allocation of investment in education and training from early childhood to further education and training and tertiary education.
2. Within that framework, examine the entire educational process and allocate investments in a targeted way, building on previous investments.
3. Within the framework, develop specific initiatives targeted at those segments in the school-age population that are lagging behind, particularly children from disadvantaged groups in the population.
4. At the other end of the spectrum, develop initiatives targeted at stretching the capabilities of the brightest children.
5. Coordinated with the development of the overall education and training framework, develop a national workforce development plan that aims to engage, and as needed reskill, underutilised groups in the workforce.
6. Review Australia's industrial relations system to make it less adversarial, more flexible, adaptive and responsive to the needs of individual sectors and workplaces, for example provide for more flexible negotiation of penalty rates in services such as retail, tourism and hospitality that operate on all days of the week, often day and night (and in some cases 24/7), year round.

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## 5. Concluding comment

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It must be emphasised that just as the NCP was a process of tackling reforms over a decade, a new wave of reforms will also be a process that takes a considerable number of years to see through – perhaps a decade. Time will be needed to undertake analysis, to achieve consensus on the need for reform and on what components will form part of the overall reform agenda, to develop implementation plans and to carry them out. But the important thing is to start out on such a process.



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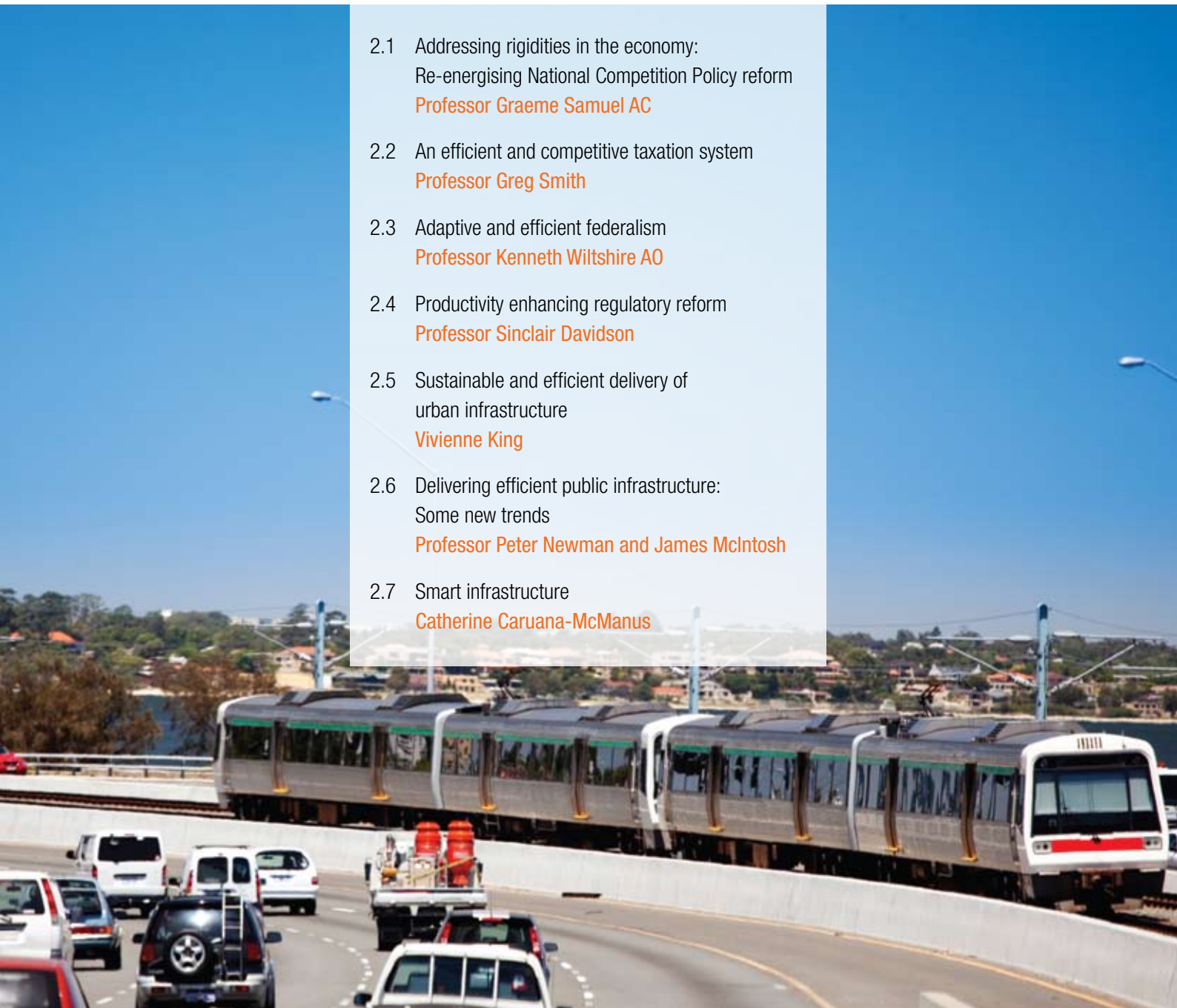
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# SECTION 2.0

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## 2.1

# Addressing rigidities in the economy – re-energising National Competition Policy reform

## Professor Graeme Samuel AC



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Graeme was President of the National Competition Council (1997–2003), Chairman of the Australian Competition and Consumer Commission (2003–11) and an Associate Member of the Australian Communications and Media Authority (2007–11).

In 1998 Graeme was appointed an Officer of the Order of Australia. In 2010 he was elevated to a Companion in the General Division of the Order of Australia – for eminent service to public administration through contributions in the area of economic reform and competition law, and to the community through leadership roles with sporting and cultural organisations.

In 2013, Australia will have enjoyed over two decades of continuous growth, free from the ravages of recession that we had become accustomed to expect as an integral part of the 10 year cycle of boom followed by bust that has been the norm in our economic history. But those years of economic plenty have instilled in our political leaders a complacency in relation to economic reform that threatens to whittle away the global competitive advantages that placed Australia so well in its ability to withstand the destructive forces of the global financial crisis in 2007–08.

Too often we hear pleas for the Reserve Bank of Australia (RBA) and government to rectify the waning competitiveness of our manufacturing sector by some unidentified process of bringing about a devaluation of the Australian currency relative to those of our major trading partners. But the levers for achieving this – in particular that of monetary policy – have become shortened stubs, with restricted capacity to engineer significant movements in the value of the Australian dollar, without bringing into play other deleterious economic side effects. But more importantly, such pleas, directed to a short term “sugar-fix”, seek to ignore or avoid the underlying need to focus on long term structural issues which require at times difficult reform measures to be undertaken to embed the solid foundations for sustained economic growth and prosperity.

And these structural reforms are directed to creating a flexible economy, that will address the rigidities that have been embedded in decades past, and have left Australian business without the necessary flexibility to adapt to the constantly changing global economy in which it must now compete.

It is about productivity.

This is **NOT** a matter of sole interest to business. It is not an issue that is about job cuts or reductions in wages or conditions. It is about producing more efficiently and encouraging innovation. Technically it is about producing more from what we input to produce. Why do it? Because increased productivity generates higher incomes and government revenue – both of which are necessary to raise living standards and rectify disadvantage in the community.

In 2005, the National Competition Council issued its final assessment of governments’ progress implementing the National Competition Policy (NCP) and related reforms under the suite of the NCP reforms adopted by all Australian governments in 1995.<sup>1</sup> It noted that over the past decade, Australian governments have participated in the most extensive and successful economic reform program in the nation’s history.

The introduction to that assessment also noted that with the near conclusion of the NCP, the Australian Government requested the Productivity Commission, in April 2004, to inquire into the impacts of the NCP and report on future areas “offering opportunities for significant gains to the Australian economy from removing impediments to efficiency and enhancing competition”.

The Productivity Commission provided its final report in February 2005.<sup>2</sup> It found that:

National Competition Policy (NCP) has delivered substantial benefits to the Australian community which, overall, have greatly outweighed the costs. It has:

- Contributed to the productivity surge that has underpinned 13 years of continuous economic growth, and associated strong growth in household incomes;
- Directly reduced the prices of goods and services such as electricity and milk;
- Stimulated business innovation, customer responsiveness and choice; and
- Helped meet some environmental goals, including the more efficient use of water.

Though Australia's economic performance has improved, there is both the scope and the need to do better. Population ageing and other challenges will constrain our capacity to improve living standards in the future. Further reform on a broad front is needed to secure a more productive and sustainable Australia.<sup>3</sup>

The Council of Australian Governments (COAG) in June 2005 endorsed the need to maintain reform momentum and to lock in the substantial benefits achieved. It stated that:

It is important not to be complacent about the continued performance of the Australian economy. Resting on the achievements of the last decade will cost the Australian community opportunities for greater prosperity.

Australia's productivity performance is under threat, with further reform essential if the economic expansion of the last 14 years is to continue.

The Australian economy is operating in an intensely competitive international environment. As a small trading nation, Australia will drive its economic growth by minimising barriers to trade and maximising its business flexibility.

The case for continuing reforms on a collaborative basis is clear.<sup>4</sup>

COAG agreed to review the NCP by the end of 2005 drawing from, but not limited by, the Productivity Commission report. But COAG essentially ignored that report, as it did the exhortation of the National Competition Council in its 2005 Final Assessment of NCP:

However, more is required than finalising an agenda conceived a decade ago. As productivity enhancing reforms have been implemented, new challenges (many not envisaged in 1995) have emerged. Some have likened the reform task to walking up a down escalator – in a globally competitive environment, reform inertia means declining living standards. The relevance of existing regulations needs to be re-assessed continually and what is considered best practice today may tomorrow be an impediment to the nation achieving its growth potential.<sup>5</sup>

And the result has been clearly demonstrated by the Australian Bureau of Statistics (ABS):

	Labour productivity growth (5 year rolling average)		Multi-factor productivity growth (selected sectors)
	Selected sectors	Whole economy	
1999–2000	3.75%	2.6%	2.5%
2011	1.9%	0.6%	– 0.6%

Lest it be suggested that the selected sectors have been manipulated to produce an artificially exaggerated result, they are: Agriculture, forestry and fishing, mining, manufacturing, electricity and gas, water and waste services, construction, wholesale trade, retail trade, accommodation and food services, transport, postal and warehousing, information, media and telecommunications, financial and insurance services, and arts and recreation services.

Where to from here? Well, we are fortunate in that the essential analysis and planning blueprint has already been undertaken. The first edition of that work was contained in the Productivity Commission's Report to COAG on NCP in 2005.

But in June 2012, RBA Governor Glenn Stevens, in answer to a question following a speech he delivered on Australia's economic performance, said:

“The Productivity Commission has a long list of things to do. My answer to what we can do about productivity is: go get the list and do them.”

As Gary Banks AO – then Chair of the Productivity Commission – subsequently revealed, there was no such list, but he set about to prepare one and published it in his final speech as Chairman of the Productivity Commission on 1 November, 2012.<sup>6</sup> There are 43 recommendations in that list.

So the analysis and blueprint for what must be done, has been completed. That's the encouraging part.

But the sobering aspect is that so much of what Gary Banks detailed in his 2012 speech was a repeat of what the Productivity Commission had detailed in its 2005 Report on NCP. A cursory comparison of the two documents reveals what most in the policy arena have been saying for some time – the economic reform momentum has slowed – and in many areas has ground to a halt. Of greater concern is the increasing evidence of recidivism in some of those occupying the halls of Parliament House, eagerly urged on by the usual culprits of vested interests in our business community.

It is not possible in this paper to cover all 43 of Gary Banks' list of reform recommendations – this paper will focus on just a few of perhaps the most significant. But that should not be taken as a sign that the others are not important. They are – indeed they are vital if we are to enhance Australians' living standards and quality of life.

So what are the primary areas that should be our focus for re-energisation of the reform agenda?

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## 1. Incentives

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The first question that should be posed, in relation to each element of middle class or business welfare, is who is seeking the welfare – in other words, identify the motives of the vested interest of the rent seeker. It will be a rare case indeed where those motives can be attributed to a public, as distinct from a private, interest.

Each of these handouts or welfare should be tested against four further questions:

- Why were they initially put in place?
- Was that genuinely in the public interest or rather to serve a political or private interest?
- If the original purpose was in the public interest, is that original purpose still relevant – will the public interest test still be satisfied?
- Is there a more efficient way of achieving the purpose?

But consider as well a broad policy position in relation to all these incentives and handouts, in the interests of equity and efficiency.

We say to our tertiary education students, we will lend you the funds to undertake your tertiary education. We expect that will equip you to earn a satisfactory income. When you do, we ask you to repay that loan, while retaining sufficient of your income to maintain a satisfactory standard of living.

Middle class and business welfare imposes massive burdens on taxpayers. They are the handouts, incentives, protection, co-investment subsidies – call them what you will – which distribute billions to selected interest groups who have satisfied the ‘P’ test – do they provide a political solution – not the fundamental ‘P’ test – do they serve the public interest?

But with middle class, and, in particular, business welfare, we do not consider this option. Instead we opt for a grant, whether in the form of a payment, co-investment, taxation benefit or whatever. We so easily succumb to the implicit threat that investment will not occur, or existing operations will cease, unless the philanthropic hand of the taxpayer is extended to line the pockets of the rent seekers.

And in this context, let us not be lured by the siren calls of those vested interest groups who, detecting the soft underbelly of a pending election, or of a government, nervous at the high profile nature of plant closures, rush to delay the inevitable restructure of particular industries with pleas for promises of government/taxpayer support.

It is appropriate to reflect on the failure of successive schemes to subsidise the Australian automotive industry – in an amount of \$12 billion over the past 20 years – with two of four manufacturers determining to cease production and a third (which has received \$2.2 billion of assistance over the past 12 years) threatening to do so. How much better it would have been to apply that taxpayer-funded assistance to retraining and relocating workers to other industries with a long term future.

And finally, before we hasten to embrace superficially attractive calls to divert government assistance from one industry that is losing public favour, to another that has not yet been subjected to critical examination – the recent calls for automotive industry assistance to be diverted to a food industry to create an Australian global food super-bowl is a prime example – we should apply the tests enumerated earlier. They fail dismally.

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## 2. Infrastructure focusing on transport and communications

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Reform in this area can be summarised under two headings:

- Private sector funding of infrastructure; and
- User pays.

Private sector funding, generally in the context of public private partnerships, has been damaged both commercially and reputationally through inappropriate risk sharing between government and the private sector. Infrastructure development requires some fundamental principles to be established, focussing on the last resort role of government, and an acceptance of the philosophy that users should pay a fair user charge for infrastructure used by them.

The essential role of government should not be to provide the first tranche of infrastructure investment funding. Rather it should be to:

- Assess infrastructure that may require some form of government involvement;
- At first instance seek to remove regulatory impediments to the private sector development of the infrastructure;
- Properly calculate the appropriate risk that may need to be borne by government to enable the private sector to undertake the necessary investment; and



- After conducting a rigorous competitive tender process for the private development of the infrastructure, assess the necessary government investment or ongoing subsidy necessary to enable the private sector development, taking into account any non-economic policy considerations that may be relevant to the infrastructure concerned.

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### 3. Tax reform

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On 3–5 October, 1996, the Australian Council of Social Service (ACOSS) and the Australian Chamber of Commerce and Industry (ACCI) held a Tax Reform Summit. Parliamentarians and public servants were not invited – it was declared a ‘politician free zone’. Following the summit, a Tax Reform Forum that the two groups formed went on to hold tax reform roundtables in the subsequent year. These efforts provided opportunities for both the business interests and the welfare interests to articulate their concerns and priorities.

The summit participants agreed on seven tax reform criteria – equity, efficiency, adequacy, simplicity, transparency, cost minimization and minimal incentive for tax avoidance. The summit implicitly expressed support for a broad-based consumption tax by recommending “broadening the tax base by removing unjustifiable gaps, biases and distortions...in each of the following areas: income, assets and consumption” and “the integration, extension or abolition of existing narrowly-based taxes”.

The resulting GST was a genuine attempt to do this, but its broad base was narrowed as part of the political process – the result is a mutant. The broad range of exclusions from the GST, a political necessity at the time of its passage through Parliament, should be reviewed with a presumption that a broad-based consumption tax should be just that. The focus should be on the base, not the rate.

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### 4. National Competition Policy

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The NCP was introduced in 1995 and a program of reform was undertaken by all Australian governments over the following decade. The policy is based on an explicit recognition that competitive markets will generally serve the interests of consumers and the wider community, by providing strong incentives for suppliers to operate efficiently and be price competitive and innovative. A key principle of NCP is that arrangements and laws that detract from competition should be retained only if they can be shown to be in the public interest.

The formal NCP reform program was brought to a halt in 2005 – with a reference to COAG which appears to have had a chilling effect on ongoing reform. The incomplete areas are too numerous to detail in this paper, but in brief encompass:

**Energy:** Electricity, particularly in NSW and Queensland, with a focus on continuing public ownership of essential infrastructure, and resultant impediments to true competition.

**Water:** Completion of the complex development of trading arrangements necessary to provide scope for the transfer of water between irrigation and urban uses.

**Freight and passenger transport:** Developing coordinated reform frameworks to promote a variety of economic, social and environmental goals – with efficiency and reliability as the underpinning foundations.



### Legislative review program

There are some high-profile areas that have so far avoided scrutiny and consequent reform. In some states, there still exist single desk marketing arrangements for some primary products – potatoes in WA come immediately to mind.

Reform of regulations relating to taxis and hire cars remains elusive, with Victoria currently running the gauntlet of a moderate reform program, and still meeting stiff resistance from incumbent vested interests.

And the cost to the economy and consumers, of the blatantly anti-competitive arrangements and regulations in the pharmacy industry can only be described as scandalous.

The NCP program needs to be re-energised – the experiences gained through its first decade of implementation would serve well to inform the process of reform and the measurement of the substantial gains to be derived from its implementation.

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## 5. Health

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It has been an accepted norm that the focus of funding and regulation of healthcare should be on the providers of health services. Under the current system, governments fund hospitals which then provide a level of service that meet their budgets. There is no competitive discipline in the public health system that would normally flow from consumers having a choice of healthcare provider.

The alternative model is based on the fundamental premise that governments should fund individual consumers – who can then by exercising choice, impose disciplines of efficiency and quality of outcomes on providers.

This system has been adopted elsewhere in the world – the Netherlands, is the prime example where healthcare has been consistently rated highly among other systems operating throughout Europe and results in a vastly improved health system for less cost.<sup>7</sup>

There is constant refrain that health is in a special category of its own that does not lend itself to competition, because competition can only thrive by empowering consumers with information as to the nature and quality of services being offered to them. It is claimed, there is an information asymmetry between providers of healthcare and consumers: How can consumers understand the complexities of healthcare sufficiently to be able to make a choice? Well, you remove that information asymmetry by interposing Healthcare Service Advisors which focus on providing information and establishing agreements with providers to enhance quality and efficiency of services provided. These are logical extensions of the services currently provided by private health insurers.

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## Conclusion

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The two Productivity Commission documents referred to in the introduction to this paper – the Productivity Commission Report on NCP from 2005 and Gary Banks' 'to do list' of 2012, point to continuing inefficiencies and performance gaps in Australia's economic performance, which if removed, could yield substantial benefits. For example, the Productivity Commission had estimated in 2005 that if Australian industry could achieve the same labour productivity levels as in the United States – gross average household income would be 20 per cent or some \$22,000 a year higher.

Why do our political leaders find reform so difficult?

Partly it is the result of complacency, particularly in recent years during which we have luxuriated in the impact of the mining boom. But that is fast abating.

However, substantially it is the result of a lack of leadership, of the nature that we experienced in the Hawke Keating Governments and at least until the beginning of the final term of the Howard Costello Government.

Leadership requires copious supplies of the three Cs – **conviction, courage, communication**.

Conviction and courage require a strong sense of values, a clear sense of purpose and the courage to pursue those values in the face of strong opposition by vested interests. It requires a compelling understanding and acceptance of the importance of placing the public interest above that of private or political interests.

Communication is as vital as conviction and courage. The National Tax Summit of 1996 was in part about communicating to the Australian community that there was a real problem with the Australian tax system, because how could the electorate be persuaded to support a reform package if it did not first understand the problem to be dealt with.

And in an effort to provide the necessary incentives for governments to undertake reform, we should recreate the concept so successfully adopted in relation to the NCP reform program – that of payments to state and territory governments conditional on specific reform programs being undertaken. These payments are essentially the Federal Government allocating to states and territories that undertake reform, the calculated financial gains, in terms of increased taxation revenue, flowing from the productivity and economic growth that results from the implementation of the reforms concerned.

In 2005 the Organisation for Economic Co-operation and Development (OECD) observed that Australia had become a model for other OECD countries in particular because of:

...the tenacity and thoroughness with which deep structural reforms were proposed, discussed, legislated, implemented and followed-up in virtually all markets, creating a deep-seated 'competition culture'.<sup>8</sup>

Those words seem to be an ideal exhortation to our political leaders following the 2013 Federal election. The new cabinet should be given the 20 page speech of Gary Banks delivered in November 2012, and in the words of RBA Governor Glenn Stevens:

"The Productivity Commission has a long list of things to do... go get the list and do them."

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**Endnotes**

- 1 National Competition Council (2005), *Final Assessment of governments' progress implementing the National Competition Policy and related reforms*, available from: <<http://ncp.ncc.gov.au/docs/2005%20assessment.pdf>>.
- 2 Productivity Commission (2005), 'Review of National Competition Policy Reforms', *Productivity Commission Inquiry Report*, no.33, 28 February 2005, available from: [http://www.pc.gov.au/\\_\\_data/assets/pdf\\_file/0016/46033/ncp.pdf](http://www.pc.gov.au/__data/assets/pdf_file/0016/46033/ncp.pdf).
- 3 Productivity Commission 2005, p. xii.
- 4 COAG (Council of Australian Governments) 2005, Communiqué, Canberra, 3 June, p.5.
- 5 National Competition Policy 2005, p. xviii.
- 6 Banks, Gary (2012), 'Productivity policies: the 'to do list'', delivered at Economic and Social Outlook Conference, Securing the Future, Melbourne, 1 November 2012, available from: <[http://www.pc.gov.au/\\_\\_data/assets/pdf\\_file/0009/120312/productivity-policies.pdf](http://www.pc.gov.au/__data/assets/pdf_file/0009/120312/productivity-policies.pdf)>.
- 7 A useful description of the Netherlands healthcare system is provided in a paper published by Civitas – Healthcare Systems: The Netherlands, by Claire Daley and James Gubb Updated by Emily Clarke December 2011.
- 8 OECD (Organisation for Economic Co-operation and Development) 2005, 'OECD economic surveys 2004', *Australia*, vol. 2004/18, Paris, February.



## 2.2

# An efficient and competitive taxation system

## Professor Greg Smith



Greg Smith is an Adjunct Professor in Economic and Social Policy at the Australian Catholic University and a Senior Fellow at the Melbourne Law School. Greg is also a member of the CEDA Council on Economic Policy, Chairman of the Commonwealth Grants Commission, and of the Centre of Excellence for Public Sector Design. He has worked as a political adviser and senior public servant on major tax, superannuation and financial system reforms since the early 1980s. He has been a past head of the Treasury Tax Policy and Financial Institution Divisions, and of Treasury Budget and Revenue Groups. He was a member of the Henry Future Tax System Review panel.

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## The tax policy challenge

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The primary purpose of the tax system is to generate adequate revenues to fund public goods and services. At the same time, the size of the tax base depends on the size of the economy so that, over time, economic growth largely determines future tax revenue capacity.

The close relationship between tax and the economy means that the tax system must meet two strategic policy goals simultaneously:

- First, it should generate adequate revenues.
- Second, it should do this without unduly harming economic growth.

An efficient and competitive tax system is one that achieves these simultaneous goals. What this means, and in particular the primary role played by productivity growth, is further explored in Box 1.

In this chapter we discuss the main reform directions that could increase the efficiency and competitiveness of the Australian tax system, including some specific tax reform options supporting each of the strategic goals.

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## Meeting twin goals

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Just because the strategic goals of the tax system are mutually supportive does not mean that tax systems always deliver them. Indeed, often there are significant practical conflicts, and these are becoming more acute as time goes by. Continuous economic and social change challenges each strategic goal, seemingly pushing demands on the tax system in opposite directions.

The first goal faces many pressures, including an ageing population, rising health costs and rising community expectations. These present demands for increased tax revenues.

The second goal faces the pressures of relentless economic and technological change. Newly emerging economies transform the competitive landscape and new technologies increase the international mobility of skills, capital and labour. We need to respond with a high rate of physical and human capital investment and innovation, and this creates pressures for lower and more efficient taxes.

How can these pressures be managed and reconciled so that the twin goals of revenue adequacy and economic growth are both met?

In many countries (since all face much the same pressures) tax systems are being recast to more clearly distinguish their impact on the present and the future. The task of raising revenues for current government purposes is being concentrated on the personal incomes and consumption of current generations. Taxes that would more directly damage saving and investment, and thereby have their main impact on the future, are being reduced.

Perhaps most remarkably of all, the relatively 'big government' welfare states of western and northern Europe (including the UK) are employing 'dual tax systems' with low company tax rates and relatively high consumption tax rates, and with higher taxes on labour income than on savings.

**Box 1****What does tax system efficiency and competitiveness mean?**

*Efficiency* is a well established concept in economics often applied to the assessment of tax policies and systems. Efficiency is often said to take three forms – technical, allocative and dynamic. The first refers to the operating task of maximising outputs from inputs. The second refers to directing scarce resources towards outputs of the highest social value. The third refers to ensuring that growth is generated over time, putting appropriate value on the future compared with the present.

However, the concept of *competitiveness*, while clear when applied to the performance of individual businesses compared with their rivals, is less straightforward when applied to an entire economy or its tax system. It is not expected that any economy should be competitive at everything. Rather, each country should concentrate on activities where it has comparative advantage, exploiting the mutual benefits of international trade.

The World Economic Forum (for example WEF 2012) has developed a definition of economy-wide competitiveness as “...the set of institutions, policies and factors that determine the level of productivity of an economy...a more competitive economy is one that is likely to sustain growth”.<sup>1</sup> This definition is based essentially on the idea that competitiveness is revealed by sustainable income levels and their growth, which in turn depend on productivity and its growth.

The WEF suggest that 12 main pillars support productivity. These are a mix of basic factors (such as sound macroeconomic policy), economic efficiency factors (like labour and capital efficiency), and innovation factors. Assessments of each of these are combined to produce a single global competitiveness index score for each country.

The OECD has used this WEF definition to help answer the question “what is a competitive tax system?”<sup>2</sup> The answer has two parts. The main answer is that a competitive tax system is one that supports the pillars that drive productivity, and hence economic growth. The impacts on the pillars of both tax policy and tax administration are taken into account. This answer emphasises that domestic policies and settings are the main drivers of competitiveness. In this regard, efficiency can be seen as a component part of competitiveness. The efficiency of taxes and their administration directly affects productivity through many of the pillars that support it.

A second concept also canvassed by the OECD is a more direct assessment of “international tax competitiveness” from the point of view of how multi-national companies (particularly those generating mobile economic rents) take taxes into account in choosing between alternative locations for activities. This considers the effects of taxes both on the attraction of foreign direct investment and on tax planning opportunities that may be pursued by these companies.

A country that is not highly competitive in the first sense (productivity) might still seek to be competitive in the second (low tax) sense. This strategy is pursued most obviously by tax havens and some other financial centres, and sometimes by others seeking relatively mobile (or ‘footloose’) foreign investments. The risk in this strategy for most developed countries is that it can distort the allocation of resources away from comparative advantage and so reduce productivity and hence competitiveness in the first sense.

Other countries that are lagging in this trend are nonetheless keeping their effective capital tax rates low. For example, company taxes in the US are low in effective terms (that is, there are many base concessions despite high headline rates) while in most East Asian economies statutory company tax rates are low. The relative weakness of consumption or personal income taxes in these other countries results either in large budget deficits or limited social spending (or both).

The issue here is that whatever our society decides to spend on public sector activity each year should be overwhelmingly funded by transfers from the private consumption of the current generation. This does not mean necessarily only through consumption taxes, because personal income taxes also largely transfer consumption spending power and do so on a more progressive basis (that is, linked to capacity to pay) than consumption taxes. In essence, personal income taxes and consumption taxes need to be adequate to meet most of the required burden of taxation.

## Box 2

### Does the tax system work – who really pays?

The legal obligation to pay taxes falls mainly on businesses and other organisations – they even pay most of the taxes on the salary and wages of their workers through pay as you earn withholding arrangements, payroll taxes and fringe benefits taxes. However, the legal incidence of taxes is not the same as the economic incidence. Businesses largely recover their tax costs through various shifts in wages and prices.

The shift from legal to economic incidence is important because the equity, efficiency and competitiveness effects of taxes depend almost entirely on their economic incidence – on who really pays.

At the most fundamental level, this raises a big question. Does the progressive tax system, and for that matter the social transfer and government expenditure systems as well, really change the distribution of income and consumption in our society? Or is the effect of these systems largely offset by shifts in incidence through wage and price adjustments?

The evidence is that these systems in fact do substantially change income and expenditure distribution. This means that they do achieve equity objectives, but also may have efficiency and competitiveness costs.

OECD statistics show that the degree of inequality of market incomes (measured by Gini co-efficients) is remarkably similar among developed countries, despite the differences among them in the extent to which public policies redistribute income.<sup>3</sup> For example, the distribution of market incomes in Germany is almost the same as in the US (Gini 0.49), even though Germany's tax and transfer system produces about twice the redistribution than the US system. These results are fairly typical for all the OECD countries, and Australia is close to average among these. These results suggest that the economic incidence of progressive tax and transfer systems is not thwarted in general by tax incidence shifting.

For Australia, the impact of government on income distribution can be illustrated as follows (noting that the higher the Gini coefficient, the less equal the distribution):

- Distribution of pre-tax/transfer market incomes    0.47
- Distribution after taxes and transfers                    0.33
- Distribution after government services spending    0.26

On the other hand, we need to ensure that the future is secured through sustained economic growth. This argues for less reliance on taxes that impact adversely on saving, investment (including human capital investment) and business innovation.

The idea that tax policies should make this key distinction depends on the idea that taxes actually do end up being imposed on the tax bases that they are intended to tax.<sup>4</sup> That seems to be largely true – some illustrations are presented in Box 2.

The Henry Tax Review is substantively consistent with this distinction.<sup>5</sup> It proposed a new and simplified tax architecture, largely to facilitate the delivery of public policy and service objectives while maximising continued economic (and hence tax base) growth. The specific vision was to sustain growth in per capita incomes at the upper end of developed country experience.

Despite terms of reference that precluded consideration of the GST, the key features of the proposed architecture were to:

- Concentrate revenue collection on four efficient tax bases – personal income tax, company tax, taxes on immobile rents (land and natural resources) and private consumption;
- Abolish other taxes (unless they efficiently meet other specific policy goals);
- Shift relative burdens toward less mobile bases (including the reduced company tax rate to 25 per cent broadly matching movement in overseas company tax rates since 2000), with greater burdens instead on consumption and rents;
- Reform and reduce the taxes on savings, both for retirement and for general savings, making each more neutral and fit for purpose; and
- Improving efficiency and equity in other taxes, transfers and charges (in areas like roads, alcohol, means tests, participation incentives etc).

In the UK, the Mirrlees tax review has supported a tax system that completely exempts the normal return to capital from tax – both for personal savings and company income (making the latter a pure expenditure tax ).<sup>6</sup> This is conceptually a more complete solution to the distinction between the future and present than was advocated by the Australia's Future Tax System Review (AFTS) although the latter said the idea should be kept under review.<sup>7</sup>

As it happens, the UK Government has selected policies closer to the AFTSR than to Mirrlees. It has raised the value added tax to 20 per cent, while reducing the company tax rate to just 22 per cent.

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## A second look at Australia's current tax system

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Past tax reform in Australia has given us a reasonably broad tax base (GST, capital gains, fringe benefits and fewer sectoral exemptions) and lower tax rates (rate reductions and dividend imputation). This reform has generally supported allocative efficiency with greater tax neutrality, although it may have added to administrative and compliance costs.

One key element did not change compared with most other countries. Taxes on personal income in most countries are split between social security taxes and personal income taxes. The social security taxes apply only to labour income or its small business equivalent, not to the returns to saving such as interest or dividends. Australia's comprehensive personal income tax therefore has a greater intrinsic bias against saving and investment than personal tax regimes in most other countries.



This chapter argues for further reform. The basic proposition is that Australia should join with others in ensuring that its taxes promote economic growth through a competitive regime for human and physical investment. Revenue adequacy goals should also be met by concentrating on taxes that are mainly incident on current consumption (including through progressive taxation on personal incomes). These two strategies are now further discussed.

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## Strategy 1: Increasing tax system competitiveness (growth orientation)

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### Why greater tax system efficiency and competitiveness is necessary

In recent years, Australia has experienced very high terms of trade and a boom in mining-related investment. This placed very heavy cost pressure on some investment sectors and so for a time it could not be argued that pro-investment tax reform or other policy settings were a high priority.

However, the issue now is that this episode in Australian economic history is passing. Once again, Australia's future more clearly depends on the competitiveness of its broader economy. As a medium sized country where most people live in a few large cities or other centres, prosperity is not, and never will be, entirely based on high prices paid by the world for minerals and fuels.

We will need higher capacity infrastructure, skilled workers, strong investment and creative, vibrant and efficient cities. Business investment and innovation will be the critical catalyst for all of these.

We have some choices to make about the contribution to this of the tax system. These choices largely depend on the type of Australia we want to promote. Australia has considerable competitive strength, so we do not have to use the tax system to attract highly footloose investment with extremely low taxes in the way that some others may do. Equally, we do not have to lead in a race to the bottom on sectoral or other special interest tax concessions (or loopholes) in order to attract any interest from multi-national companies. These strategies, addressing the second form of tax competitiveness identified by the OECD (see Box 1) are available, but unlikely to best suit us.

We are more likely to do best with policies that secure competitiveness through higher productivity and growth in the industries where we sustain comparative advantage. This means increasing the efficiency of our taxes, reducing the extent to which they burden saving, investment and innovation, and ensuring that they minimise cost disadvantages for internationally competitive firms operating in Australia.

### The main competitiveness options

#### Company tax rate reduction

A lower company tax rate is probably the most powerful option available for increasing the efficiency and competitiveness of the Australian tax system. Theoretical and empirical evidence support the view that a small open economy such as Australia would be best served by lower statutory and effective company tax rates.

It is notable that virtually all comparable countries (small, open, developed) now have company tax rates well below 30 per cent, whether welfare states in northern Europe, developed city-states, or emerging economies in our own East Asian region.

The case for a lower company tax rate is largely based on providing a strongly supportive setting for business investment and innovation, vital to Australia's capacity to sustain high employment growth, a more diverse economic base, and to compete and thrive as a trading country. A lower company tax rate is likely to attract more direct foreign investment from overseas, and particularly favours both locally and foreign-owned companies in start-up and growth phases as they retain and re-invest earnings.

In this regard, the case is for a reduced effective rate of tax, not just a lower statutory tax rate. Introducing less favourable treatment of investment, particularly research and development directed at creativity and innovation, should not be seen as a potential offset, if the reform is to deliver its main benefits.

Reducing the tax rate is also generally assessed to offer two other important benefits. First, it reduces incentives for tax minimisation through profit shifting, which can have adverse real effects on the economy. Second, it reduces the tax bias in favour of higher corporate borrowing.

Even so, the case for a lower company tax rate must be weighed against some other considerations. The company tax effectively is a composite tax serving a variety of purposes, and not all of these are best served by reducing the tax rate. To the extent that company tax has been overly relied on in Australia as a tax on land and resource rents there is little or no case for cutting the rate unless some offsets are found.

Similarly, issues can arise where resident investors use companies to escape higher personal tax rates. However, the capital gains tax operates as a partial limitation on that strategy, while dividend imputation ensures that distributed company income is effectively taxed at the personal tax rate, regardless of the company tax rate.<sup>8</sup>

Notwithstanding these issues, the balance of considerations is moving increasingly in favour of reducing the company rate, perhaps with some adjustments to other policy settings to ameliorate any unwanted secondary effects.

### **Replacement of inefficient state taxes**

A second priority for delivering a more efficient, competitive tax system is to remove the several remaining inefficient taxes levied (mainly) by state governments.<sup>9</sup> These are inefficient mainly because they are single level source taxes which raise business costs and distort economic choices. Part of their efficiency cost arises from distorting specific design features such as thresholds and exemptions. Particularly as currently designed, state stamp duties, conveyance duties, taxes on insurance and (perhaps to a lesser degree) payroll taxes have high efficiency costs.<sup>10</sup>

The states and local government share a potentially efficient tax base in land rent. However, the full efficiency benefits of this base are realised only with an efficient annual tax imposed on a comprehensive, unimproved land value base. Instead, land taxes in Australia often apply on the basis of a limited range of land uses, on land sales, in some cases on improvements and often on a rising scale linked to total land holdings.

A universal payroll tax potentially would be efficient. However, most countries levy such a tax as part of the social security tax system, for which the Australian equivalent is compulsory superannuation. In this context, the current high threshold state payroll tax is probably quite distorting in a number of labour markets. While it might be possible to reduce these costs by imposing a universal tax, the better solution would be to replace the tax entirely with a broadly based consumption tax.

Removing these inefficient taxes would likely result in reduced prices. This provides the opportunity for replacement by consumption taxes with low net price impacts, just as the introduction of the GST in 2000 in large part replaced or reduced other inefficient taxes.

Reform of this kind requires a co-operative approach between the Commonwealth and the states. Consumption taxes must be levied by the Commonwealth for constitutional and practical reasons, and revenue or program funding adjustments to accommodate reforms require intergovernmental agreement. In consequence, the tax reform agenda in these directions needs to be integrated with reform of federal financial relations if each is to reach its full potential.

### **Taxes on human capital formation and attraction**

Human capital is every bit as important as business capital in the productivity of the economy, and labour income is the major part of the return to human capital. Yet taxes on labour income (when derived and when spent on consumption), as noted in the next section, comprise the essential foundation of the revenue-raising task.

This presents a significant design challenge for tax policies, and tradeoffs are inevitable, and some are noted in the next section. The issues and opportunities are too numerous and complex to discuss at any length here – many are addressed in the 2009 AFTS and 2011 Mirrlees reviews – but some key points can be made.<sup>11</sup>

The tax system should:

- Ensure that effective marginal tax rates are never so high as to heavily damage incentives; for increased workforce participation or skill development (at all levels of income);
- Provide a positive environment for self-education, training and skill development;
- Minimise tax compliance costs for skilled and internationally mobile labour; and
- Provide a competitive environment for highly skilled, creative and innovative activities, including investment in intellectual property, recognising their key role in building dynamic new growth opportunities.

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## Strategy 2: Securing adequate future revenues

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### **Why greater revenue capacity is necessary?**

There are three reasons why tax reform needs to address the fundamental axiom of ‘revenue adequacy’.

The first is that the existing tax system is already falling short of revenue goals. For a mixture of cyclical and structural reasons, annual tax collections in Australia are running about two per cent of GDP (about \$30 billion) below the levels that were established in the years between the introduction of the GST and the onset of the global financial crisis in 2008. While expenditure reductions may contribute to meeting this challenge, some revenue recovery may also be needed.

The second is that tax reform aimed at increasing competitiveness – of the main kinds noted in this paper – will have some short to medium term revenue costs. The aim of these reforms is to underpin a stronger economic growth rate and hence stronger tax base in the long term, but there is a revenue cost in the interim. In effect, pro-competitiveness tax reform calls on the community to make an investment in the future – to

fund public services today through greater transfers across the consumption patterns of the existing community instead of across time and generations.

The third reason is that we face new revenue needs arising from underlying social and economic change, even just to continue doing what we are doing now. This is the message of the intergenerational reports produced in recent years, which project the fiscal costs of existing policy over future decades arising mainly from the ageing of the population and the long trend towards higher healthcare costs.

### The main revenue strengthening options

#### A strengthened role for consumption taxes

There are several options for strengthening the role of consumption taxes in Australia. The most efficient option would be to broaden the base of the GST since the exclusions generally have both allocative and compliance/administrative efficiency costs. Some exclusions (particularly relating to health and education) may not be worth removing because a large part of spending on these is government funded. The two main options that could be considered would in combination increase the GST revenue yield by about \$9 billion per annum, namely:

- Financial services such as banking. The AFTS Review set out a mechanism to tax value add that could overcome the technical difficulties of the invoice method when applied to financial services. Replacing the current input taxation of this sector would have the further competitive benefit of removing tax on the export of financial services.<sup>12</sup>
- Untaxed foods. The original proposal for the GST did not contain this exemption.

A further possibility is to increase the GST rate, which would raise about \$5 billion for each percentage point increase on the current base (and approaching \$6 billion if the base was broadened as well).

A third option, canvassed in the AFTS Review, is to introduce an accounts-based cash flow tax on nearly all value added at a low rate.<sup>13</sup> This could replace existing inefficient indirect taxes such as payroll tax and transaction based taxes. However, it seems unlikely that imposing two value added taxes on a largely shared base would prove attractive. Instead, consideration could be given to deciding the best design for value added taxes in the context of business practices and technologies in the 21st century, and applying that model as a single tax.

#### The role of personal income tax

The progressive rate structure of the personal income tax means that the average rate of tax increases each year with wage and price inflation. This process is referred to sometimes as 'fiscal drag', and sometimes as 'bracket creep'. The large reductions in personal tax rates that were made between 2005 and 2010 are now gradually being unwound by this process, and budget forward estimates are based on this continuing. At the same time, the Medicare levy (part of the personal tax scale) will increase by 0.5 per cent in 2014 to help fund expanded disability care services.

Clearly then, the progressive personal income tax is already seen as a vehicle for future revenue growth. As the largest tax in the system, there are many opportunities for this base to be called upon for a stronger role.

However, if it is, very careful attention will need to be given to design issues. The trade-off between the revenue functions of the personal tax system and the task of promoting competitiveness through human capital investment was noted under

Strategy 1 above. The personal tax can itself generate significant inefficiencies if it has adverse effects on workforce participation, or if it renders Australia a significantly less attractive place for highly skilled activities.

It is often forgotten in Australian tax discourse that Australia's broader policy framework adds appreciably to these risks. The base upon which the personal income tax is struck, particularly for labour income, is also the same or similar for:

- Compulsory superannuation contributions;
- Payroll tax;
- Repayments of student loans;
- Means tests on family payments and other social assistance; and
- Child support obligations.

In combination, these can result in very substantial effective marginal tax rates. There are as a result significant potential efficiency benefits (and perhaps revenue benefits) of ensuring that the tax base is as broad as possible so that effective marginal rates are contained.

Perhaps ironically, for example, given the complex and distorting provisions for net residential rental income of individuals generate more tax loss claims through negative gearing than tax receipts, a carefully designed exemption for this income could effectively broaden the base and increase net tax revenues.

Similarly, the AFTS Review identified a range of options for making Australia's retirement incomes policies more sustainable and effective in the long run, particularly as life expectancies and associated aged care and support costs continue to increase substantially over coming decades.<sup>14</sup> Reforms in this area may prove necessary as the tradeoffs between efficiency and revenue raising become more acute.

### Other options

It is not possible to canvas all of the options that may contribute to revenues (or reduce expenses) in this paper. Proposals for reforms that are both efficiency-improving and potentially revenue raising were canvassed in the AFTS Review in relation to the replacement of royalties with resource rent taxes, land taxes, road use charges and infrastructure pricing, and alcohol taxes.<sup>15</sup> There is also renewed concern in Australia and internationally about possible increases in tax avoidance through international tax base erosion and profit shifting. Suffice to say, reform options in these other areas will need to be further considered in the period ahead.

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## Timing and packaging reform

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It is not uncommon to find a reasonable level of support for the general long term goals or ideas of tax reform. It is much less common to find strong enough support for actually making the policy changes directed towards them.

In the past, most major tax reforms have been approached through one or more packages, although this is not a guarantee of success. Packages deal not only with specific reform elements but also with their interactions, trade-offs and timing. Packages will continue to be necessary, not least to address issues arising from tax reform for federal financial relations.

But tax packages in the past have often sought to eliminate, compensate or even overcompensate short term losses. The challenge now may be harder – some sharing of short term losses may be needed for long term economic gains and meeting longer term fiscal needs.

To clarify the messages and to build understanding of this trade-off, it may be desirable to separate packages relating to future growth from those relating to current revenue needs. The need to distinguish these tasks, with a dual tax system mindset, is a central theme of this chapter.

Further tax reform that promotes competitiveness needs to be understood as a positive sum game for the future, including the future of essential public services. If this is not done, tax reform will be hostage to simple, short term winner-loser assessments at the expense of the long term.

*Greg Smith was a member of the Australia's Future Tax System Review panel. The views expressed in this paper are those of the author and not necessarily of any other person or organisation.*

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#### Endnotes

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- 2 Matthews, S (2011) "What is a "Competitive" Tax System?" *OECD Taxation Working Papers*, No 2 OECD Publishing <http://dx.doi.org/10.1787/5kg3h0vmd4kj-en>.
- 3 OECD (2013) "StatExtracts" *Income Distribution and Poverty*, available at <http://stats.oecd.org/Index.aspx?DataSetCode=IDD>.
- 4 Australia's Future Tax System Review (AFTSR) (2009), *Report to the Treasurer Parts 1 and 2*, Canberra, available at [www.taxreview.treasury.gov.au](http://www.taxreview.treasury.gov.au).
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- 6 Mirrlees, Sir J et al (2011), *Tax by Design*, Institute for Fiscal Studies, UK available at <http://www.ifs.org.uk/mirrleesReview>.
- 7 Recommendation 26 in AFTSR (2009) proposed keeping existing company tax arrangements for now but added "a business level expenditure tax could suit Australia in the future and is worthy of further consideration...it is possible that other economies will move towards such a system over coming years..."
- 8 AFTSR. (2009).
- 9 References to 'states' in this paper also include the Australian Capital Territory and Northern Territory.
- 10 AFTSR. (2009).
- 11 AFTSR. (2009); Mirrlees, Sir J et al (2011).
- 12 AFTSR. (2009).
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## 2.3

# Adaptive and efficient federalism

## Professor Kenneth Wiltshire AO



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Kenneth was a consultant for the new federalism reforms of the Fraser and Hawke Governments and was a founding Board member of the Constitutional Centenary Foundation. He has served as Chair of a number of Commonwealth-State bodies, including the Australian Heritage Commission and the Wet Tropics Management Authority, and was Special Adviser to the Australian National Training Authority. He served for six years as Australia's representative on the Executive Board of UNESCO. In 1998 he was awarded the Order of Australia for services to policymaking, public administration and UNESCO.

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## Introduction

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As a key element of our governance, Australia's federal system must be adaptive and efficient to enhance the nation's productivity and international competitiveness which is an urgent imperative. Reflecting on the lessons of successful periods of intergovernmental relations in Australia, and drawing on the experiences of other dynamic federations, three major reforms of the federation are recommended:

1. Addressing the heart of the problem which is the vertical financial imbalance (VFI), by granting the states and local governments more direct access to growth taxes. This can best be achieved by formal tax sharing among the three levels of the main, direct and indirect taxes, namely income taxes and the GST. The formula for the sharing of these taxes would be altered every year in line with the pressures on each level of government. The Australian Taxation Office would remain the single tax collection agency.
2. Eliminating overlap and duplication between levels of government, by introducing a formal process for responsibility sharing, clarifying accountability, and establishing clear criteria for the roles and responsibilities of each level. This would be achieved by entrenching a new look Council of Australian Governments (COAG) with a truly intergovernmental secretariat into the Australian Constitution, with a clear mandate and gridlock requirement to achieve these goals. Harmony in infrastructure policy and delivery would be achieved by revamping Infrastructure Australia and basing it in Section 105 of the Constitution. Reducing duplication of regulations would also be a priority.
3. Establishing a new set of performance indicators for the Federation in general, and COAG in particular, by a synthesis of current comparative performance measures, culminating in a new *State of the Federation* report to be debated annually in state parliaments and particularly in the Australian Senate through a new Senate committee on intergovernmental relations.

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## The concept of federalism

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The concept of federalism is generally thought to be derived from the ancient word 'foedus' which means a *covenant* or *compact*; in this case between sovereign political entities who desire to create a nation as a federation, but who do not wish to surrender their own sovereignty. The dynamics in a federal system come principally from the fact that the focus is on the sub-national (state) governments and, because they are sovereign, they have the freedom to innovate, compete and experiment in policy formulation and delivery. However, a written constitution is necessary to guarantee the compact and protect the sovereignty of the partners. It is crafted to reflect this desire and is usually made difficult to amend especially in relation to vertical relationships between national and sub-national levels. Operational flexibility between the levels is generally provided for within the constitutional framework but that too is fairly limited and usually comes with caveats or temporary timeframes. So divided sovereignty is the key feature that distinguishes federalism from other forms of government, and this therefore becomes the greatest challenge in making a federation adaptive.

Almost all of the federations in the world are to be found in geographically large countries that are difficult to govern from one central point, or in culturally diverse countries where regions wish to preserve powers to sustain that diversity, such as with language, education, cultural, or broadcasting powers. Unitary systems of government



are deemed unsuitable to achieve these objectives, especially if they possess no written constitution or are undemocratic. Federalism was considered to be a system to encourage innovation because experiments could be tried and tested in one jurisdiction before being applied across a whole nation; in this it also fostered competition as each state would endeavour to attract people and capital through sound comparative performance.

The founders of the Australian Federation followed this pattern as they pursued the ideal of a nation that would achieve *unity in diversity*. Formal amendment of the Australian Constitution requires a popular referendum as well as a parliamentary vote, an aspect not found in most federations and which reflected the surge of people power in the 1890s when politicians had lagged in momentum towards nationhood. A majority of Australians from a majority of states must approve a referendum for it to become law: a stiff test.

Within the legal constitutional framework there were just a few formal mechanisms provided for adaptation. They included:

- Referendums to change the Constitution (Section 128) borrowed in concept but not design from the Swiss Federation;
- Some concurrent powers between Commonwealth and states but with a Commonwealth override in the event of any inconsistency;
- The possibility of a temporary interchange of powers between levels of government but with the donor government retaining the right of recall (Section 51); and
- A provision for conditional grants from the national to state governments but which was intended to be only temporary in nature and designed to help any particular state out of a short term exigency (Section 96).

Therefore it is not surprising that most of the adaptation of the functioning of the Australian Federation has occurred through political rather than constitutional processes. These have transformed the federal system from the vision of the founders, who believed that the national government would remain small and circumscribed, with its powers limited to truly national responsibilities and overseen by the states who would drive the nation largely through a powerful Senate which would function as a state's house – the perceived American model at the time. They saw Australia as six economies and societies with limited interaction of powers, and minimal intrusion of one level of government into the bailiwick of the other – 'layer cake' federalism. The British Government would continue to handle Australia's foreign affairs, and the ultimate court of appeal would be the Privy Council in London.

### The forces of centralism

The past 113 years have witnessed a growing centralisation of power in the Australian Federation. This has occurred through a number of modalities:

- *The decline of the Senate as a state's house* as party politics has attained an ever increasing grip on the politicians who make up that chamber.
- *The passing of a number of referendums*; three in particular have given the Commonwealth more powers – Loans 1927, Social Security 1948, and Indigenous Affairs 1967 (at 90 per cent the highest 'yes' vote ever).
- *Limited instances of the temporary interchange of powers* between Commonwealth and states.
- *Some unconstitutional action* such as when the states enter the realm of foreign affairs and international trade, or the Commonwealth creates bodies such as the CSIRO; but these actions are not challenged.

- *Decisions of the High Court* that have had the effect of increasing the powers of the Commonwealth in fields of both taxation and expenditure, based mainly on the forces of globalisation and the exigencies of nationhood. The court has opened state paddocks to the Commonwealth boundary riders.
- *The periodic arousal of co-operative federalism*. There have been three prominent periods of co-operative federalism in Australia; the post Great Depression period, the Fraser Government, and the Hawke Government's new federalism reforms. These reforms involved some power sharing. However, although all of these periods provide evidence of a dynamic in federal relations, they all meant greater ultimate power for the national government in many areas formerly the exclusive jurisdiction of the states.
- *Use and abuse of the federal finance powers*. Of all the forces for centralism in the Federation this has been the most profound and with the greatest consequences. Australia now has the highest degree of VFI of any federation with the national government collecting more than 70 per cent of all public revenue through sole occupation of the key growth taxes – personal and corporate income, customs and excise, and the GST (which is a Commonwealth tax even though it is currently given to the states). Also, largely through the abuse of Section 96 of the Constitution (which was designed as a purely temporary measure to help states in difficulty), successive Commonwealth governments of all persuasions have attached more and more onerous conditions on the grants they give to the states, and also engaged in a substantial amount of cost shifting. The states have done the same to local government.
- *The rise and rise of executive federalism*. In order to make federalism work Australia has developed the world's most complex pattern of intergovernmental arrangements, with COAG at the pinnacle of an array of ministerial councils and administrative arrangements and agreements. Promoted as a solution to the complexity even the recent move to so called "Intergovernmental and Partnership Agreements" have resulted in even more Commonwealth power, since at the end of each agreement looms a Commonwealth veto largely related to funding, and since the Commonwealth holds the purse strings he who pays the piper calls the tune.
- *Centralisation of the political parties*. With the coalition parties having seemingly jettisoned their former belief in states' rights in recent years, all of Australia's major political parties are now centralists, and have no compunction in overriding states in policymaking and delivery.

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## Potential benefits and observable shortcomings of Australian federalism

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Australia should expect to enjoy all the benefits which are claimed for federal systems of governance. These have traditionally been believed to include celebrating diversity, creating potential for innovation, allowing policy competition between states to help achieve national growth and development, and tailoring national goals to local circumstances while encouraging community engagement.

However, the reality has fallen well short of the ideal and it is generally agreed that Australia still has a 19th century model trying to perform in a 21st century environment. It can be seen from the short history which has been outlined that particular shortcomings of the Australian Federation include centralisation and homogenisation, lack of accountability and certainty, inefficiency and waste, and threats to sustainability of the Federation.

### Learning from the successes of co-operative federalism

The key lessons from Australia's experience come from the successful periods of co-operative federalism mentioned above. All of them involved some overriding commitment to national objectives; post the Great Depression it was employment and investment generation; in the Fraser years it was a response to economic instability caused by significant increases in public expenditure and centralisation of decision-making; in the Hawke years it was the pressing desire for microeconomic reform and international competitiveness. The last period is the standout success where significant co-operation saw the introduction of the National Competition Policy, east coast electricity grid, a national railway agreement, standardised and harmonised regulation and consumer standards, and mutual recognition of many policies.<sup>1</sup> Power sharing was key and a recognition that national policies could be achieved by Commonwealth-State partnership and not the national government taking powers for itself alone.

The recipe for successes in co-operative federalism included:

- An acceptance that Australia will retain a federal form of government. Many of those desiring radical reform argue for abolition of the states and a shift to a unitary form of government usually underpinned by some kind of regional arrangements, most of which see the fragmentation of current states and combination with local government. However, making the Federation work involves accepting that the principles of federalism, and the states, are here to stay.
- Acceptance of the above means that the states must be treated as sovereign entities, for example as policy partners, with sovereign areas of jurisdiction. This also implies acceptance of divided sovereignty as a starting point in negotiations regarding policymaking and implementation.
- Employment of rational and transparent evidence-based public policymaking in all intergovernmental negotiations and elimination or at least minimisation of purely political considerations.
- Demonstration of trust between all parties at the intergovernmental interface.
- Open and consultative communication between negotiating parties throughout the whole process of intergovernmental discussions.
- A commitment from all parties to pursue solutions in the national interest, and clear identification of the roles and responsibilities of each partner in attaining this objective.
- Establishment of principles underlying the objectives of all intergovernmental negotiations (such as the four principles of the Hawke Government period, namely national interest, subsidiarity, efficiency, and accountability).
- Displaying a commitment to the principle of sharing of resources and responsibilities to achieve efficient and sustainable outcomes, including sharing of public revenue, functional powers and public sector staff expertise.

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### Creating an efficient and adaptive federation

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With the benefit of hindsight, and drawing on the experience of other federations, there are a number of key elements that need to underpin any attempt to create an Australian Federation that is efficient, dynamic and adaptive. These issues have constantly arisen, particularly in the post-World War II period, and have been exacerbated in the past decade. They are of particular concern to the business community, which has traditionally not been very vocal regarding the need for federal reform but today has these issues at the forefront of its concerns, as expressed more recently by the Business Council of Australia,<sup>2,3</sup> and the Australian Petroleum Production and Exploration Association.<sup>4</sup>

## 1. Tackling vertical finance imbalance: The heart of the problem

Australia's VFI, the highest in the world of democratic federations, is the greatest impediment to the efficiency and adaptiveness of the Australian Federation. It denies the states direct access to any major growth tax therefore preventing them from being sovereign partners in federal policymaking. It also makes them far too dependent on the whims of GST handouts from the Commonwealth, and their regressive and inefficient employment-destroying taxes like the payroll tax and various stamp duties and royalty regimes. Across the Federation VFI breaks the nexus between taxation and expenditure, leading to a lack of accountability and irresponsible behaviour from both levels of government, not to mention exacerbating the blame game. The answer lies in tax reform.

The simplest solution is to return to the taxation arrangements actually contained in the Constitution and which were in place before uniform taxation was introduced for World War II. The states would simply take back their income tax powers, with the Commonwealth vacating that income tax place, and retaining the GST. There is no need for the states to establish their own taxing machines – this can easily be done by the Australian Tax Office, which would collect both Commonwealth and state income taxes at rates and structures determined by each jurisdiction. The Horizontal Fiscal Equalisation scheme would continue to be applied to state income tax capacity. All this can be done with no required constitutional change as long as all states move together. It is essentially the system that operates in the US and in most federations. Indeed it is unique for a sub-national government in a federation not to possess its own income-taxing powers.

A second slightly different option is the Canadian regime where the provincial income taxes are piggy-backed (as a percentage) on to the national income taxes and collected by the national tax authority on behalf of the provinces.

A third very attractive option is the German model where the Constitution (Basic Law) outlines a procedure where the major taxes are apportioned each biennium between the three levels of government; predominantly the income taxes and Value Added Tax (VAT). A conference between the three levels of government meets to consider the trends and pressure on revenues and expenditures facing all three levels and then decides to vary the percentage going to each level on the basis of this evidence, for example in the past the allocation of some taxes has been 40/40/20. This solution requires a degree of rational behavior and open, evidence-based discussion, which may be beyond the capacity of Australia's political leaders if past behaviour is any guide, but it is an ideal approach from the perspective of creating an adaptive federal system.

## 2. Eliminating overlap and duplication

The overlap and duplication in the Australian Federation arises from a number of causes. Globalisation is one factor with its tendency to cause centripetal forces giving more power to national governments in federations. Then it is also a fact that the nature of the public sector has changed to address the challenges governments face. Very few issues or trends can nowadays be compartmentalised into sectors – for example, most social issues have education, health, police and even town planning aspects; economic issues have to be addressed through fiscal and monetary policy as well as labour law and linked welfare payments. Different levels of government have varying responsibilities throughout this spectrum. Then there are linkages between functions of levels. For example an increase in asylum seekers (a Commonwealth responsibility) immediately puts pressure on housing, education and health (state responsibilities).

Then there are occasional ‘overrides’ such as major national issues that transcend all of the Australian public sector – for example, runaway inflation, terrorism, gun control, and in these cases all levels of government have to be involved.

This complex situation is severely worsened by the VFI, which sees the Commonwealth intruding into more and more state functional areas. The result is that there is much duplication and second guessing by both levels, inefficiency and waste, generation of considerable uncertainty, and distorted accountability leading to blame games. Moreover any flexibility in the Federation to address arising policy issues is severely curtailed.

### **Clarifying roles and responsibilities**

So ‘layer cake’ federalism has been replaced with ‘marble cake’ federalism and it is no longer possible to speak of discrete powers or functions for each level of government. In most public sector functional areas two or even three levels will be involved, such as health, transport, infrastructure and environment.

Some unscrambling of the federal omelette would be possible if VFI were reduced by giving the states greater tax powers. States might then revert to their constitutional base and have near complete responsibility for, say, education, health, land use and transport, with the Commonwealth confined to purely financing aspects. Much of the Commonwealth bureaucracy in these arenas of state responsibility could then be abolished if this occurred. If the High Court minimised interpreting the Constitution to allow the Commonwealth to override states that would also clarify responsibilities.

However, the realistic answer to dealing with this phenomenon is to accept that it is no longer possible to unravel this reality but to accept that in many public policy arenas there will be a mix of levels involved, and to *focus instead on defining the roles and responsibilities of each level in the sectors of shared responsibilities*. This was essentially the approach adopted in the design of the post-war German Constitution followed by later inclusion of the ‘Joint Tasks’ concept, from which Australia has much to learn, and it was one of the pillars of the reforms of the Hawke federalism period, such as a focus on roles not functions.

To do this requires an effort to develop criteria for assigning roles and responsibilities between the Commonwealth, state and territory, and local governments. There were four major international attempts in the 20th century to conduct this task. They included the Kestnbaum Commission in the USA, the Rowell Sirois Commission in Canada, the Australian Advisory Commission on Intergovernmental Relations, and the aforementioned inclusion of ‘Joint Tasks’ in an amendment of the German Constitution.<sup>5</sup> So the criteria already exist and need to be revisited by an independent inquiry or a reformed Productivity Commission to produce a new blueprint for Australian intergovernmental relations. This needs to be done in consultation with all the major interest groups that interface with all levels of government since they are frozen out of current intergovernmental dealings.

In principle the states should have prime responsibility for policymaking for those sectors which they have been assigned under the Constitution, for example education, health, transport and law and order. However, the states must also be policy partners in all areas affecting the discharge of their constitutional responsibilities. The real danger to avoid is the common practice of assuming that the national government will always be the dominant policy partner and the state and local governments merely service deliverers.

### Harmonising regulation

There is far too much duplication of regulation in Australia. Red tape, green tape and brown tape. One of the causes is the fact that when the National Competition Policy was introduced the states were given the option of using the Australian Competition and Consumer Commission (ACCC) to handle regulation or establish their own regulators. The result has been much uneven and confusing regulation across the nation and some questionable decisions from state competition authorities, which seem immune to the impact of price rises on consumers, and unaware of the need for companies including state owned corporations to keep some profit share to reinvest in infrastructure; and they also often display a sheer lack of understanding of the industries being regulated. The other major cause is, of course, the general overlap and duplication in the Federation caused predominantly by VFI and High Court decisions, outlined above.

There really are only four approaches to this problem. One is to embark on a complete review of the need for regulation across the whole economy with a mandate to recommend deregulation or self-regulation wherever possible; the second is to insist on a regulatory impact statement being an integral part of every intergovernmental policy proposal, together with a sunset clause being built into every regulatory regime; the third is for the Commonwealth to follow the principle of subsidiarity and devolve/ delegate its micro-regulatory powers to the states in all sectors where the states have major jurisdictional responsibilities (under this scenario the states could conduct both state and Commonwealth regulatory assessments of projects at the one time); and the fourth option is for the states to diminish the jurisdiction of their own competition authorities and delegate responsibility for regulation of nationally functioning sectors of the economy to the ACCC, which would be reformed to become more of an intergovernmental body with seconded state officials working within it to provide the regional expertise and knowledge. This last option should materially reduce overlap and generate more consistency and certainty as well as giving industry a one stop shop for guidelines and laws within which to operate.

### Solutions for infrastructure coordination

Australia already has half a solution in place for the reduction of overlap and duplication in infrastructure policy and provision. We have Infrastructure Australia with a good track record in handling major national infrastructure policy, although it could make its policy recommendations more transparent with regards to the cost-benefit studies it undertakes (or does not undertake), and the criteria for the rankings of projects it produces. Otherwise its guidelines are sound including for the new era of Public Private Partnerships of projects that will dominate our skylines over the next decade. We also have a potential constitutional base for Infrastructure Australia, in Section 105 and 105A, which created the Australian Loan Council. That body has/had an excellent formula for Commonwealth and states to decide on funding for the provision of infrastructure by the three levels of government as well as the government guarantee of loan raising by the three levels of government.

Infrastructure Australia should have its legal base shifted to Section 105 of the Australian Constitution and its governance structure should reflect the model of financial borrowing/decision-making among the levels that prevailed there for most of the history of the Federation. Infrastructure Australia should always have a complement of state public servant experts in this area seconded to its staff. State governments would refer all major infrastructure appraisals to Infrastructure Australia for recommendations and then state infrastructure bureaucracies could be reduced in size commensurately. The best operational model then would be for Infrastructure Australia to make constant use of the Productivity Commission to assess all major projects.

### Box 1 Entrenching a reformed COAG

1. The Australian Constitution should be amended to create a Council of Australian Governments, (COAG), comprising the Commonwealth, state, territory and local governments.
2. COAG should meet at a minimum once each year and ideally twice. The mission statement of COAG should contain the effective and sustainable performance of the Federation as a main goal, together with a set of fundamental values and principles encompassing the attainment of the national interest through policy partnerships between sovereign jurisdictions, adaptability, subsidiarity, accountability, efficiency and effectiveness. Definition of roles and responsibilities for each level would be an operational imperative, along with the relevant criteria for assigning those roles and a mechanism for adapting them, involving the Interchange of Powers provisions of the Constitution.
3. COAG would be supported by a policy secretariat comprised of seconded Commonwealth, state, territory and local government officials. The Secretariat would engage the Productivity Commission and other relevant independent bodies in the formulation of policy recommendations for COAG and would follow a defined rational public policy framework in bridging research and policy.
4. Agenda papers for all COAG meetings would be distributed to all members a minimum of two weeks in advance of meetings.
5. A tax sharing formula would be introduced for the three levels of government to share the major taxes in the Federation, namely income tax (both personal and company) and the GST. The percentage shares going to each level would be reviewed by COAG each year and altered to reflect trends in the pressure on functions and services at each level of government. COAG agreement on tax sharing in each 12 month period would be mandated in the Constitution. A gridlock provision may be necessary so that, for example, in the event of failure to agree all intergovernmental programs would be temporarily suspended; or failure to agree would subject all members to possible legal action from persons directly and adversely affected.
6. The Commonwealth Grants Commission would recommend the formula for horizontal equalisation of revenue and expenditure capacity to COAG for approval.
7. COAG would endorse all intergovernmental agreements drawn up between levels of government. Such agreements would ideally be for five years and have a sunset clause. The Secretariat would be responsible for preparing, for public consumption, an annual directory of all intergovernmental agreements outlining their objectives, scope, duration, dollar and manpower resources, service delivery arrangements, and responsibility of each level; with a clear indication as to where appeals or questions can be directed regarding design or delivery of the program. All intergovernmental agreements would be audited in a co-operative model by Commonwealth and state auditors-general, and be subject to review by both Commonwealth and state ombudsmen.
8. All international treaties proposed for Australian signing and ratification would be tabled and debated at COAG so that the implications for all levels of government could be discussed and the tax sharing formula, and responsibility sharing arrangements, adapted accordingly.
9. COAG would be obliged to produce a report annually entitled *State of the Federation* outlining the performance of the intergovernmental agreements against their objectives and targets including the performance of each jurisdiction, based on a suite of performance indicators including input/output/outcome data of the kind currently produced by the Australian Bureau of Statistics, Productivity Commission, Commonwealth Grants Commission, COAG Reform Council, and the various auditors-general. The report would also report progress on the elimination of overlap and duplication as well as harmonisation of regulation.



10. The *State of the Federation* report would be tabled and debated in the Commonwealth state and territory parliaments each year. A new Senate Committee on Intergovernmental Relations would debate each year the Directory of Intergovernmental agreements and the *State of the Federation* report and receive submissions from all community interest groups, resulting in a committee report recommending any changes to the COAG arrangements.

If necessary these arrangements could be made using the Interchange Powers of the Constitution with a five or seven year sunset clause reflecting the long lead times for construction of infrastructure. Then the Commonwealth and all state, territory, and local governments should move to four or five year parliaments, ideally with fixed terms.

### 3: Reform of COAG and creating adaptability

COAG will be the focal point in endeavouring to create a federation that is adaptive, efficient and effective. Spawned out of the former Premiers' Conferences, COAG is an unconstitutional body. Indeed its main advantage should be that very informality, whereby a forum is created to co-operatively design national solutions to issues that cross borders. With the three levels present it represented a golden opportunity for mutually acceptable solutions in the national interest. It requires that all parties agree that 'national' does not automatically mean 'Commonwealth Government' but rather means 'Partnership'.

The severe shortcomings of COAG are well known and have been comprehensively documented by Paul McLintock in his former role as Chair of the COAG Reform Council.<sup>6</sup> He reports that while some success has been achieved in certain areas, even the shift to consolidate some 110 former individual intergovernmental agreements to a combination of a macro Intergovernmental Agreement and a few Partnership Agreements based on modern concepts of performance and outcomes measures, has not worked. Politicians have strayed outside the spirit and letter of the agreements, and anyway the Commonwealth has the final veto power.

A great deal of space could be devoted to the debate over COAG but in the final analysis it boils down to the question as to whether the leaders of the various governments can be trusted to engage in rational, open, collaborative debate and decision-making in the national interest, or whether the process and its performance criteria need to be enshrined in the Constitution to force politicians to behave in the desired mode. Entrenchment is the answer and if it is adaptability we are seeking through more rational and less purely political behaviour then the obvious place to look for guidance is Germany, which has a very effective model in this domain – a constitutionally entrenched rational resource allocation process between three levels of government, based on evidence-based policymaking, with specified results for the collaboration.

Another innovation that would materially improve the performance of COAG would be to follow the former Canadian model of the Federal Provincial Relations Office, which was set up to service the First Ministers' Conferences. It contained both national and provincial public servants on secondment so that expertise from all levels was represented. This also led to an informal pattern of career mobility of senior public servants between levels of government and between provincial jurisdictions, which was of considerable benefit to a greater understanding of all jurisdictional viewpoints at all First Ministers' and other ministerial conferences. Ideally an Australian equivalent, the COAG Office, should be composed of public servants on secondment from national, state, territory and local governments, and not be based in Canberra.



In this vein the schedule below has been developed including a proposed constitutional amendment. In addition four or five year fixed parliamentary terms across the Federation would be desirable. The transition to the new Australian model could be overseen by the COAG Reform Council, which should hopefully then be able to go out of existence.

#### 4. Potential constitutional change

Most of the suggested reforms contained in this paper could possibly be achieved by political and administrative means. However, to ensure the implementation of the scenario depicted, a number of constitutional changes would be desirable. They include:

- Inserting a new clause creating COAG and its mandate and imperatives (outlined above), especially in relation to continuous adjustment of tax sharing formulae and responsibility sharing arrangements.
- Inserting a new clause, possibly in Section 51 and/or Section 96, to mandate tax sharing of income (personal and corporate), and consumption (GST) taxes, as well as responsibility sharing between national, state/territory, and local governments.
- Embedding Infrastructure Australia in Section 105, regarding the Australian Loan Council.
- Clarifying Section 96 regarding conditional grants from the Commonwealth to the states but with greater limits on Commonwealth power, ideally stipulating tighter timeframes and specific circumstances under which such grants may be made. Those who desire direct funding from Commonwealth to local governments might wish to add that wording but they need to realise this will change the nature of the Federation.
- Inserting and clarifying the term ‘environment’ in the Constitution, to allow clearer understanding of the roles of levels of government in this domain.
- Clarifying and defining more closely Commonwealth power in the field of external relations.
- Introducing four or five year terms (ideally fixed terms) for the Commonwealth Parliament with a consequent rotation plan for Senators. States and territories to amend their constitutional arrangements similarly.

#### 5. Designing federalism performance indicators

Australia already has a number of robust measures of federal performance, which compare the performance of the jurisdictions. They include:

- The Australian Bureau of Statistics public finance data – mainly input and output indicators of performance of all jurisdictions.
- Productivity Commission biennial comparisons of state and territory program performance in mainly outcome and output terms. Also periodic forays of the Productivity Commission into policy arenas with intergovernmental programs.
- COAG Reform Council progressive reports on achievement of all jurisdictions of outcomes supposedly mandated in COAG-ratified intergovernmental Partnership Agreements.
- Commonwealth Grants Commission periodic reviews and annual updates comparing input measures for state and territories.

However, the problem is that there exists no overall holistic report synthesising all these measures. That would be the role foreshadowed for the *State of the Federation* report mentioned above. More importantly there is a serious lack of interest in the

Commonwealth and state/territory parliaments, by the oppositions in particular, in holding governments to account for their comparative performance or lack of performance. This is a strange and disappointing fact given the wealth of performance measures contained therein. That is the reason for the recommendation mentioned above for the *State of the Federation* report to be debated in all Australian parliaments.

## 6. The pillars of federal adaptability and efficiency

A federation is meant to be a partnership between sovereign entities. But like all partnerships it will only function effectively and harmoniously, and be capable of adjusting to changing circumstances, if the partners are truly equal, open, communicative and rational in their behaviour towards one another, acting in their common interest, which in this case means the national interest. This is the only workable recipe for the marble cake which Australia's federal system has become, so that it can play its part in creating a sustainable, adaptive, productive and dynamic Australia.

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## 2.4

# Productivity enhancing regulatory reform

## Professor Sinclair Davidson



Sinclair Davidson is a Professor in the School of Economics, Finance and Marketing at RMIT University and a Senior Fellow at the Institute of Public Affairs. He has written extensively on taxation and public policy in Australia and is a regular contributor to public debate. His opinion

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## Introduction

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It is widely and commonly accepted that Australians are over-burdened by regulation. Political parties, in opposition, regularly promise to reduce regulation but somehow fail to do so in government. Julie Novak has provided a comprehensive overview of the growth in government in Australia since pre-federation days.<sup>1</sup> As a rough (but popular) measure of regulation she reports that the various Australian parliaments passed over 25,000 pages of new legislation in 2012.

It is not just the amount of regulation that is a problem. How regulation is enforced is also problematic. In 2012 the High Court threw out a case brought by the Australian Security and Investments Commission (ASIC) against mining magnate Andrew (Twiggy) Forrest. The allegation had been that Forrest had misled investors eight years previously. Yet ASIC did not produce any actual investors in court as evidence of its allegations – rather ASIC had imputed how investors might have interpreted a press release.

This sort of regulatory enforcement is not uncommon. Rod Sims of the Australian Competition and Consumer Commission (ACCC) has described his approach to regulation as follows:

“The way I always approach issues is in two stages. Stage one is: Do I think there’s economic harm? Either to the competitive process or to consumers if we’re talking about consumer issues. Has there been detriment? Is there a problem? And then step two is: Do we think we can succeed in court?”<sup>2</sup>

What happens is that regulators both administer and enforce regulations – they no longer need an actual complaint from an aggrieved individual, rather they proceed on the basis as *if* there had been a complaint. Regulators’ ability to initiate action against business is limited only by their imagination. However, at the same time, this approach to regulation can be somewhat arbitrary:

“[Rod Sims] breezily admits that there are all sorts of breaches of the Competition and Consumer Act going on about which the ACCC doesn’t care – because there is no detriment.”

This does keep regulators and lawyers busy, but it is not clear that having business defend itself in courts of law against these claims adds to productivity, profitability or prosperity. The regulatory process no longer adjudicates disputes between actual individuals and firms, but rather has become a make-work exercise where regulators are able to contrive theoretical disputes and ‘explore’ the limits of the law.

This chapter makes an argument for regulatory reform in Australia. Not that regulation should itself be abandoned *per se* but that the activities of regulators are substantially curtailed. Rather than having full-blown regulatory agency enforcement of regulation, a system is proposed where private litigation using public rules substitutes for public litigation of public rules. To be sure this may not be appropriate in all settings, but government should give careful consideration to introducing this reform in those settings where it would reduce the regulatory burden on business.

## The economics of regulation

Glaeser and Shleifer argue the demand for regulation arose due to a perception that big business could ride rough shod over the interests of smaller market participants.<sup>3</sup> In this framework (explained more fully below) government intervention may be appropriate. However, once that demand for regulation is met there is a tendency for growth in regulation to become self-sustaining.<sup>4</sup> This is certainly the case in Australia.<sup>5</sup> The growth in regulation manifests itself not only in the increase in the number of regulations itself but in the proliferation of regulatory agencies, and the increased powers of all of those agencies. It is very likely the case that for many types of regulation the marginal costs do now outweigh the marginal benefits of additional regulation.

The economic theory of regulation is broken up into three strands. The public interest theory suggests that governments intervene in order to correct for various market failures. The special interest and capture theory of regulation suggests that industry seeks out regulation in order to create barriers to entry for new rivals and to maintain profitability.

The public interest theory and the special interest theory of regulation are polar opposites on a regulatory continuum. Each provides valuable insight into the regulatory process, yet both are incomplete and unsatisfactory. Proponents of the public interest theory struggle to explain how and why markets actually fail in practice, as opposed to failing in principle. While the special interest theory of regulation cannot explain why developed economies are so much wealthier today, than say a mere 100 years ago, when the level of regulation has increased dramatically. This observation appears to be inconsistent with the argument that excessive regulation impedes economic progress and undermines corporate dynamism.<sup>6</sup>

It is well recognised that regulation does impose high costs on both consumers and corporations. Rod Sims, for example, concedes that regulatory action could result in higher food prices for consumers. Jones and Graf divide the costs of regulation into direct and indirect costs.<sup>7</sup> The direct costs include compliance and administrative costs. Indirect costs include reduced innovation, delayed product development, and reduced productivity growth. They argue that most of those costs are ultimately borne by consumers. The Canadian Red Tape Report estimated the cost of regulation to be C\$31 billion each year.<sup>8</sup> The Australian Chamber of Commerce and Industry surveyed its membership in 2012 and reported that almost half of respondents spent at least \$10,000 on regulatory compliance, with 26.3 per cent spending over \$50,000 on regulatory compliance. This is almost the employment cost of a full-time employee.

In a series of papers Andrei Shleifer and various co-authors have developed an institutional theory of regulation (Shleifer 2005, refers to this as the enforcement theory of regulation) that examines four broad governance strategies that can be pursued in order to achieve an objective relative to the trade-offs associated with those strategies.<sup>9</sup> These strategies are: market discipline, private litigation, public enforcement through regulation, and state ownership. The societal trade-offs are as being the costs of private disorder and the costs of government dictatorship. Disorder relates to the ability of private individuals to inflict harm on others, while dictatorship relates to the ability of government and its bureaucrats to inflict harm on others.

In this framework, market discipline should be considered as the regulatory default. Of course, that is not always possible and at this point the control strategy becomes private litigation. The state begins to play a role as the rules of contract and tort law are administered by courts of law staffed by bureaucrats and judges. Courts of law exist, at this level, to enforce private agreements and to adjudicate disputes between private parties.

Chicago school economists have argued that the combination of market discipline and courts of law should suffice for any regulatory framework. However, Djankov et al argued that courts cannot always resolve disputes cheaply, predictably or impartially.<sup>10</sup> This is especially the case when the parties to the dispute have vastly different resources that they can deploy to a legal dispute.

Regulation occurs when the state not only provides a dispute resolution mechanism but also writes the rules that govern economic behaviour and transactions. There is substantial variation in how government can enforce its regulations. For example, it can allow bureaucrats to engage in a regime of inspection and verification with fines being issued for non-compliance. Alternatively, the state can provide a set of rules that are privately litigated, or publicly litigated. Public litigation can consist of either civil or criminal charges. Similarly the regulatory agency can initiate litigation itself for breeches of the regulations, or act once a complaint has been received.

State ownership appears to be an efficient response to those situations where the disorder costs are likely to be very high. Shleifer gives the examples of prisons, police forces and military where this is likely to be the case. The costs of disorder resulting from private ownership here are potentially so large that government needs to maintain control over these institutions.

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## Proposal

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In this section I propose that private enforcement of public rules be adopted as Australia's default regulatory regime. As with any choices this involves competing considerations, which I highlight. However, ultimately the empirical evidence is consistent with the notion that regulations and legal rules matter but that regulators *per se* do not.

La Porta, Lopez-de-Silanes and Shleifer investigate the impact of security laws on financial markets across 49 economies including Australia.<sup>11</sup> In particular they investigate how security laws operate to protect investors and whether regulators with public enforcement or rules with private enforcement lead to better outcomes. After exhaustive empirical analysis, they find that legal rules matter, but that *regulators* do not always matter. So long as rules can be enforced in courts investors do not need to be protected by regulators.

Barth, Caprio and Levine find an analogous result in their investigation of bank regulation and supervision across 107 countries, including Australia.<sup>12</sup> They summarise their results as raising a cautionary flag against regulatory practices that involve direct oversight and restrictions on banks. Barth's conclusions are remarkably similar to La Porta's results. Regulations involving prescriptive behaviour and powerful regulators using public enforcement mechanisms are not the better techniques to employ for the purpose of social control.

However, private enforcement of public rules does require explicit rules. Glaeser and Shleifer trace the development of so-called 'bright line rules' in their comparison of the medieval English and French legal systems.<sup>13</sup> In their model bright line rules emerge as a mechanism to control judges. However, as Klick points out, it isn't clear why regulators would be any different from judges in the Glaeser and Shleifer model.<sup>14</sup> Just as bright line rules could and should control judges, so too they should also control regulators.

Shleifer and his various co-authors appear to have a preference for regulation over litigation. Djankov, Glaeser, La Porta, Lopez-de-Silanes and Shleifer, for example, argue

that litigation and regulation are conceptually similar but regulation offers advantages over litigation.<sup>15</sup> It is not immediately clear that this type of argument is correct. Private litigation consists of disputes between actual individuals who have incurred a loss as a consequence of the actions of the counterparty. Regulation and litigation arising from regulation involves disputes over abstract principles and involve no actual loss.

The major advantage regulation offers to litigation is that parties to a dispute may have very different legal resources. Yet Djankov et al do not explain how to overcome the inequality of legal resources between private individuals and the regulator itself.<sup>16</sup> The regulator is able to pursue legal action subject to a budget constraint underwritten by the taxation power of the state. In Shleifer's enforcement cost model of regulation this issue is itself a 'dictatorship cost', yet it is not clear that they even recognise this issue as being a problem.

There are apparent advantages of regulators over judges. Djankov et al have set out the arguments in favour of regulation over court orders and private litigation. First, public regulators are specialised in the area and are motivated to pursue the regulatory objective. Second, regulators can act pre-emptively to prevent disorder from arising. Third, subversion costs for regulators may be higher than those of judges.

Conversely regulators are bureaucrats and suffer from all the problems that the public choice literature has identified with bureaucracy. These include over-enforcement of regulation, mission creep, size maximisation and perquisite maximisation and, occasionally, a quiet life. Then there is the issue of the independence of regulators. It is quite plausible to believe that regulators should operate at arms length from the government to prevent political abuse of the regulatory agency. This abuse could either consist of political interference to prevent regulation of favoured constituents, or as a tool to harass political minorities. However, the cost of that independence is to dilute or even remove democratic control over the regulator. It removes accountability from an important and growing component of government.

All up we are left with theoretical arguments that suggest a range of benefits and costs that favour either litigation or regulation by regulators to control disputes. On the other hand we have clear empirical evidence that supports bright line rules and private litigation as a mechanism to provide social control over business.

It is important to recognise that this reform of regulation will not suit all areas of regulation. For example, airline safety regulations are better suited to enforcement via a regime of inspection than after-the-fact litigation. The argument here is that a one-size-fits-all approach to the establishment of regulatory agencies – all of whom have the power to create regulation, and then enforce those regulations via the issuance of fines and/or self-initiated litigation – is going to add to the regulatory burden of business over and above the regulations themselves.

Implementing this type of reform would encounter some resistance.<sup>17</sup> Regulators are public servants and may not be easily displaced. Similarly the legal profession may protest at the reduction in government initiated litigation. In short the costs of this proposed reform are concentrated, while the benefits are dispersed. That is a classic indicator for policy inertia.

The biggest challenge facing this proposal is the ability of the Australian Parliament to write clear, unambiguous bright line regulations. Incomplete or poorly drafted legislation that gets resolved in the courts is itself a burden on business. Business itself will have to take a more proactive approach to regulation where it not only informs government of the opportunity costs of increased regulation but also the general public. If the supply of regulation is in response to public demand, as Glaeser and Shleifer suggest, then those who prefer less regulation need to communicate the high opportunity costs of increased regulation and the need for clear regulation.<sup>18</sup>



A final criticism of the proposed reform may be that the cost of litigation to private individuals may be prohibitive. However the establishment of bright line rules would go some way to alleviating this problem.

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## Conclusion

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In this chapter is an argument not for deregulation as much as a change to how regulation occurs. It is clear that an entirely deregulated economy could not function. It is also clear that the level of regulation is currently well beyond what could be considered optimal.

A system of private enforcement of public rules would substantially reduce the amount of make-work regulation that currently burdens Australian business. Regulatory action that was initiated by actual individuals who had actually experienced some harm and who had standing to bring an action would see regulation evolving in such a way to enhance economic efficiency in much the way that people like Friedrich von Hayek and Richard Posner have suggested. In the first instance many of the activities of the Australian Competition and Consumer Commission, the Australian Prudential Regulation Agency, and the Australian Securities and Investments Commission should be considered as candidates for this reform.

The arbitrary and haphazard enforcement of rules by non-self-interested individuals cannot promote economic prosperity and must simply contribute to regime uncertainty.

The cost of regulation is large and growing. Consequently it is important that this area of government intervention in the economy be constrained to those areas of activity and those modes of enforcement that are likely to add value to the economy.

*This chapter relies on material I have previously published in Davidson (2010).<sup>19</sup>*

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## 2.5

# Sustainable and efficient delivery of urban infrastructure

## Vivienne King



Vivienne King is the Managing Director of KDR Gold Coast which is responsible for the operation and maintenance of the light rail.

Previously, Vivienne was the head of Strategy and Service Development at RailCorp where she oversaw the strategic planning, investment strategy and capital works program, and previously held the Chief Operating Officer role for the organisation.

Vivienne has 19 years experience in transport and has worked in many areas across front line, infrastructure, strategic planning and daily service delivery as well as the 2000 Sydney Olympic Games transport task.

Vivienne has an undergraduate degree in Commerce and holds post-graduate qualifications in Project Management, Industrial Relations, Business Administration and a Masters degree in Leadership and Public Policy from Griffith University.

Vivienne is a fellow of the Australian Institute of Management, holds the chair of International Association of Public Transport of Australia and New Zealand and ARA Light Rail group, sits on the CEDA State Advisory Council of Queensland and is a graduate of the Australian Institute of Company Directors.

Imagine a country that had a long term plan for transport and infrastructure development that spanned at least two decades if not three. Imagine an industry sector that believed in the long term plan and actually invested in resources, both hard and soft, to meet our infrastructure challenges. Imagine an apolitical approach to prioritisation of transport or infrastructure funding. Imagine, imagine, imagine.

This sense of imagination can perhaps approach reality if we determine a formula which allows governments to outline a plan for infrastructure (such as transport and land use plans) that provides industry with the confidence to invest their time, effort and – more importantly – their funds. Imagination could also turn to reality if we openly discuss what are the appropriate arrangements to maximise the efficient delivery of infrastructure according to the agreed plan.

There have been, of course, examples in Australia where forward planning for infrastructure provision has been reflected in the reservation of land for future projects. Some urban centres have done this better than others. However, this reservation process has been more focused on a project by project approach, rather than being part of an integrated forward plan for the entire transport network. Reserving corridors is a critical part of long term planning; however, the proof is in the integration of these corridors with the actual infrastructure commitment. Too often we see the corridor reservation as the only commitment.

This paper will not necessarily answer these questions or outline new information. Instead, I hope sparks a healthy debate as to how we can encourage the development of firm and sustainable plans by governments and planning agencies. In doing so, this can provide greater certainty to investors, as well as creating a clearer basis for efficient infrastructure delivery.

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## What are the infrastructure challenges facing us?

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The importance and challenges of delivering infrastructure to Australia's urban centres between now and 2025 cannot be understated. As finance becomes more and more difficult to secure and the competition for tax dollars becomes more onerous, the emphasis should be on getting more for the dollar and gaining support from the community to achieve the right infrastructure outcomes.

Like most countries and regions across the world, Australia faces a significant challenge in addressing urban infrastructure backlogs. Various figures are mentioned in terms of the amount of money needed to address this backlog. While I would be reluctant to put a precise figure on it, there is a high level of investment needed to improve the quality and performance of our urban infrastructure, both now and in the future.

If we don't put the building blocks in place now to address these infrastructure backlogs, we risk incurring damaging economic, social and environmental consequences. Urban congestion is one such example of the consequences of failing to provide adequate, efficient and sustainable infrastructure. Traffic congestion alone is forecast by the Bureau of Infrastructure and Transport and Regional Economics to cost the Australian economy \$20 billion in lost revenue by 2020.

However, we know that obtaining funding and financing to address this backlog is difficult, particularly in a fiscally constrained environment. Accordingly, governments are increasingly looking at private sector involvement to provide the necessary capital injections for the construction of critical infrastructure.

Aside from this, there are also competing priorities for funding from a range of different policy areas (such as health and education), often from the same bucket of money or funding sources. In this context, it is not always easy to secure adequate funding.

Finally, in Australia, we are facing the very real challenge of a skills shortage in the infrastructure sector, particularly given that we have experienced a mineral resources boom over the past decade. Each state is committing to a level of infrastructure investment, which may mature at very similar times and we all know what happens leading up to a resource shortage – the cost of infrastructure increases.

It is in this context that achieving long term infrastructure planning and choosing efficient delivery models for infrastructure are critical.

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## The value of long term infrastructure pipelines and how to achieve them

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The starting point for developing long term infrastructure pipelines lies in government being clear about its vision for infrastructure and having coordinated infrastructure plans that have a sufficiently long timeframe.

A long term infrastructure vision, with appropriate plans and projects that are aligned to this vision, has a number of benefits, including:

- It can ensure that infrastructure projects contribute to integrated infrastructure outcomes;
- It provides a transparent record of government intentions in terms of infrastructure delivery;
- It provides a clear basis upon which to seek funding for infrastructure projects (particularly at the Federal level); and
- It provides certainty to the market for infrastructure project delivery, allowing efficient planning and resourcing to occur.

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## How can we achieve long term infrastructure plans?

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To provide this level of certainty, governments could be required to have long term infrastructure plans and, ideally, these plans should integrate transport and land use infrastructure requirements.

While governments do make infrastructure plans as a matter of good policy, the preferable approach is to require such plans to be made as a matter of good governance.

There are two examples of how infrastructure plans can be made mandatory. One mechanism is for relevant state or Federal legislation to require infrastructure plans for the relevant sectors, such as transport. Another mechanism is to make the requirement for long term plans to be a precondition of infrastructure funding. We already have a mechanism at the Federal level, through Infrastructure Australia and the Building Australia Fund, for the funding of major infrastructure projects to be assessed. Perhaps this process could be improved further by requiring any plans or project to be consistent with a long term infrastructure plan for a particular region or jurisdiction.

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## What's in a plan?

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Long term infrastructure plans (LIPs) should include an overall vision and a set of programs and projects to achieve this vision. The programs should be modular so that when funding becomes available, governments don't spend months or even years deciding which projects to deliver.

LIPs should be for a duration of at least 15 years if not 20.

LIPs should also be developed through a consultative process across relevant planning departments and with community input, to ensure appropriate buy-in from those affected by the plans.

LIPs should specify the relevant funding options available for each project (if they are not already funded).

LIPs should also have regular periods for review. Governments change and so do their priorities. But the existence of a LIP, with the ability to review the plan, should provide an appropriate mechanism to balance good policy and politics.

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## How to optimise infrastructure delivery

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A LIP can create the certainty and value described above in terms of shaping medium to long term resourcing and investment by both public and private sectors for infrastructure delivery. But how do you move from a plan, with funded projects, to an efficient model for infrastructure delivery?

In terms of infrastructure procurement and delivery, every project is different. Infrastructure delivery options must be carefully assessed on a project-by-project basis to ensure the right arrangements are developed.

There are a number of principles to bear in mind in order to maximise efficiency in delivery:

- Scope and value need to be made clear by the procuring agency;
- Risk transfer options must be transparent and open to negotiation;
- Contractual documentation should facilitate project delivery arrangement and outcomes, rather than what some might describe as simply lining the pockets of the legal advisors; and
- Outcome driven key performance indicators, rather than output based indicators, should be favoured.

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## Public Private Partnerships

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Private Public Partnerships (PPPs) are proving to be a good model to balance competing options in terms of delivery and provide good outcomes for a range of stakeholders. They are also a good way to harness the natural efficiencies brought by the private sector in infrastructure delivery.

The objective of PPPs is to bring money from the private sector into a partnership with government to develop infrastructure and provide the partner with the ability to make a profit for their stakeholders. Critically, governments want to transfer risk to the private

sector and their stakeholders, while providing infrastructure that otherwise would not be affordable with tax funds alone. However, successful PPPs are often hard to find here in Australia. Recent memory tells us that too often government buyouts have been required. This can be seen in circumstances where the private public equation can backfire when the cost of risk tends to increase the overall financing required to complete the job.

In Europe, we have seen that government agencies often invest time and effort in developing very clear and detailed design requirements. This allows the industry to cost the job and associated risks to a level that provides more certainty than what is seen in Australia. There could be a strong lesson here for our agencies. Australian departments and agencies tend to outsource the design of large infrastructure programs, which is often the point of contention as the work progresses.

If the Australian agencies wish to continue with this approach, one alternative is to ensure they engage expert operators and service delivery companies early in the process to keep the designer accountable. While government may have particular expertise in certain areas of procurement, it often doesn't have the expertise to understand how the operation will actually deliver the service and/or maintain the infrastructure to achieve the benefits originally defined.

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## The benefits of getting your delivery model right

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Getting it right in terms of your delivery model for infrastructure has a number of benefits. It can allow the right balance of risk to be shared between delivery partners and appropriate returns to be gained on investments. Good returns provide the right setting for financiers to invest in future public transport projects.

Beyond the letter of the contract and the description of delivery arrangements, it is also important to establish good relationships with the range of stakeholders involved in project delivery. This is fundamental to the success of any project. Indeed, when thinking about PPPs one must not forget the third P – partnership. Too often the third P is forgotten and the public and private stakeholders fall back on the words of the contract rather than trying to work forward in partnership. What we need to do is understand how to establish and nurture the openness required to keep dialogue moving forward and stop reliance on the contract to prove a point or position.

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## Conclusion

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As stated at the outset of this paper, it was not my intention to provide a comprehensive framework for long term infrastructure planning. I am also not providing an answer to the question of how to establish the ideal delivery methods for successful infrastructure projects, or even the model to ensure future investment is achieved. However, what I do hope to have achieved is to promote debate and discussion on a number of key points to consider when thinking about what we need to do in this country to provide more certainty for infrastructure delivery. As a starting point, that certainty could be established through plans that don't change every four years. And if we can develop plans which span the cycles of government and lock down projects and priorities over time, imagine what could be achieved.



## 2.6

# Delivering efficient public infrastructure: Some new trends

## Professor Peter Newman and James McIntosh



Professor Peter Newman began in 2008 as the Professor of Sustainability at Curtin University and Director of the Curtin University Sustainability Policy (CUSP) Institute. He started as an academic at

Murdoch University in 1974 and retired in 2007 after 20 years as the Director of the Institute for Sustainability and Technology Policy. In 2001–03 Peter directed the production of Western Australia’s Sustainability Strategy in the Department of Premier and Cabinet. It was the first state sustainability strategy in the world. He was Chair of the Western Australian Sustainability Roundtable advising the State government on how to implement the State Sustainability Strategy from 2003–2006.



James McIntosh is a qualified Land Use Planner, Transport Planner and Registered Cadastral Surveyor, and is currently studying a Doctor of Philosophy at the Curtin University Sustainability Policy (CUSP) Institute

developing a comprehensive assessment framework for valuing transport infrastructure projects. James has 16 years of professional experience in multidisciplinary engineering and environmental consultancies in Australia including SKM and Pitt & Sherry and for his own firm, James McIntosh Consulting, as well as international experience with Western Geophysical in hydrocarbon exploration.



Infrastructure is a major part of understanding how we have a productive economy and especially how our cities are managed efficiently. Transport infrastructure in particular is a vital sector in Australia's productive economy, and its operation is critical to enable products and services to be delivered efficiently and effectively. The investment in public transit is the most effective form of accessibility provision for Australia's skilled workforce and businesses, especially in the knowledge economy, as it is economically efficient by simultaneously supporting increases in urban density, managing congestion, and improving liveability and sustainability in our cities. The increased transport and urban efficiency (and subsequent reduction in the marginal and opportunity cost of production) resulting from an investment in public transit infrastructure creates a comparative advantage for the city over other cities and regions. This chapter examines:

1. The importance of depoliticising the infrastructure process;
2. The revival of cities and urban rail, based on economic and cultural change;
3. How funding of infrastructure needs to consider the issues of agglomeration economies and avoidable costs through urban land use efficiencies; and
4. How to include land value capture as a way of financing urban rail.

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## 1. Depoliticising the infrastructure process

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Politics is often a pull between political realities and economic realities; no area demonstrates this more than infrastructure. As elections roll around there is always a new announcement in a marginal seat for a new piece of infrastructure, some of which are needed and others are not. In our history of involvement in infrastructure<sup>1</sup> the only way to get some very obvious and successful rail infrastructure built in WA was through political intervention. So it can be understood that sometimes politicians need to intervene to enable a system that is not very flexible to new trends to be renewed by their intervention.

But the old system of seeing transport infrastructure as being just for roads has changed. Now, rather than road funds, all Australian governments at state level have transport funds and each project has to demonstrate its competitive advantages across modes.

Infrastructure Australia (IA) was established in 2008 to help depoliticise the infrastructure delivery process at the Federal level. This is very hard to do, so not all infrastructure decisions by the Federal Government in the past five years were recommendations from IA, though most of the big projects were from the IA list, that were funded. It was therefore disappointing to see that infrastructure was largely repoliticised when Tony Abbott suggested in May, 2013:

“We have no history of funding urban rail and I think it's important that we stick to our knitting. And the Commonwealth's knitting when it comes to funding infrastructure is roads.”

There is no doubt that roads will need to be a major Federal responsibility, but is urban rail so easily dismissed as a national responsibility? This chapter will show why it is especially important to have mode-free politics when it comes to prioritising infrastructure and that an arbitrary dismissal of urban rail would not be in the economic interests of the country.

Post-war, the Commonwealth set up a national highway program, as did the United States, in response to a perceived security need. The assessment of economic need was clearly part of this agenda but mostly it was about responding to the perceived



threat of potential invasions and getting people out of cities during the Cold War. This is where the 'knitting' became roads-based and it was all outside cities. In recent years this has become blurred as first urban roads and then urban rail became part of the Federal Government 'knitting'.

IA was set up with a remit to examine all infrastructure projects without political preference for particular modes but on their economic significance. At inception, IA conducted an infrastructure audit that showed an enormous backlog of infrastructure projects and established a project assessment process. It involved essentially three steps:

1. **Strategic value:** The project must demonstrate that a real need is being met, that it is the best way to achieve these goals, and that it is part of a clear planning process integrating with land use to create a more productive, efficient and sustainable city or region.
2. **Benefit cost ratio:** The project must demonstrate a clear beneficial economic outcome, with consideration of Wider Economic Benefits (WEBs) as part of this calculation.
3. **Delivery:** The project must show how funding is integrated across all potential sources and that a proper procurement process is embedded in an efficient and transparent governance process.

As a result of this assessment process, IA recommendations led to 55 per cent of the first Nation Building funding going to urban rail, due to the economic value demonstrated in the assessment of the three steps outlined above. Urban rail projects have been funded recently in Australia because they achieve good strategic outcomes, provide higher benefits than costs, can be delivered well by good governance, and reflect the urban economic and cultural changes occurring in Australia.

Increasingly, these projects were achieved using some of the new approaches to funding and assessment involving strategic land use planning to encourage more efficient use of land, incorporating the new insights into agglomeration economies and the process of analysing and, where possible, capturing some of the benefits created by the investment in infrastructure through the use of land value capture.

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## 2. Urban economic and cultural change

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The biggest change in the economy during the period leading up to and including the recent period of car use decline and rail growth has been the digital transformation and the consequent knowledge/service economy. Despite this being global and enabling long distance communication, it has in fact been a concentrating force in terms of city structure and fabric. Newman and Kenworthy demonstrated a universal increase in urban density over the past decade after over 100 years of decline.<sup>2</sup> Cities are coming back in after decades of going out.

The knowledge economy and digital jobs are focused in city centres, as these are where the creative synergies between people occur.<sup>3</sup> Old CBDs have been transformed back into functional walking cities, and those that have done this best have attracted the most capital and young talent to work there.<sup>4</sup> Other centres have also done similar transformations, and the public transport linkages between them have become the basis for the revival of the transit-based city. Universities, health campuses and IT job clusters have created their own centres for jobs and have attracted housing and transit. Thus the urban structural change and the value of time saved by

rail outstripping cars in the journey to knowledge-based centres, are obviously closely linked. Cities are focusing on rail because it is good economics and makes sense for public transport infrastructure.

As with many economic changes, there is also a cultural dimension to this change that perhaps explains the rapidity of the changes observed above as well as the demographic complexion of the change. Young people (especially those involved in knowledge economy jobs) are moving to reduce their car use and switch to alternative transport faster than any other group. This has been recognised by a few commentators and related to the use of social media devices.<sup>5</sup> On transit or walking (and even to an extent while biking) young people are already connected by their smart technology phones and tablets. They are hardly usable while driving a car. The Davis Report shows that the mobile phone is a far more important device than a car for younger people, and is a cultural revolution that partly underlies the rail and urban revolution.<sup>6</sup> Baby-boomers gained freedom and connection with a car, Gen Ys and Millennials are not needing one, as they like to save time on a fast train and to use the time constructively relating to their friends and work.

The other expression of this change is that younger people are moving to live in the Walking City or Transit City as these locations more readily enable them to express the kind of urban experience and culture that they aspire to.<sup>7</sup> Thus they feed the market that enables the rail revival and city centre renewal to continue. Cities that are responding to the powerful new agenda for building rail systems can enable this new, less car dependent city to emerge. However, if a city does not adequately develop or build the rail infrastructure, then it can easily miss out on this important social and economic change.

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### 3. New approaches in economic assessment of infrastructure

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There are two major ways for the economic assessment process for infrastructure to be improved: further recognising the role of agglomeration economies in the project economic assessment benefit-cost ratio (BCR) and recognising the role of avoidable land development costs.

#### a. Agglomeration economies

Agglomeration economies have been included in transport BCRs since the Eddington Transport Study in the UK.<sup>8</sup> Their application in rail is considerably better than road projects as rail acts as a focusing feature that enables the synergies and clustering of knowledge economy productivity, for example the Walking City. Trubka has outlined the value of agglomeration elasticities for Australian cities, and when these are included in the project economic analysis the impacts on the project's BCR can be significantly increased.<sup>9</sup>

Rail projects enable centres to form in a spatially efficient manner, which is important for the development of a prosperous knowledge economy, where it is anticipated that most new jobs are created in the forthcoming Asian Century, as Australia continues to transform into a regional service-based economy. An example of the use of agglomeration in rail transit infrastructure assessment is the Cross Rail project in London which had a traditional transport economic BCR of 1.5 but when the agglomeration benefits of the project were considered, the BCR went to 3.0, which was one of the key investment decision drivers for the UK Government in the middle of the worst recession in their economy for a generation.

**TABLE 1**  
**COMPARISON BETWEEN A REDEVELOPED URBAN ENVIRONMENT AND A GREENFIELDS URBAN ENVIRONMENT IN AUSTRALIA (COSTS IN \$A).**

Per person per year	Redeveloped inner urban area	Greenfields urban area	Difference
<b>Transport and land use characteristics +</b>			
VKT per person per day	3-13 km	20-35 km	
Car trips per person per day	2.32	3.39	
Transit trips per person per day	0.56	0.165	
Transit accessibility	more than 80% w, >15min service	less than 15% w, >15min service	
Walk/cycle trips per person per day	2.115	0.945	
Distance to CBD	less than 10 km	more than 40 km	
GhG per capita daily (CO <sub>2</sub> – e)	0 to 4 kg	8 up to 10 kg	
Activity density	> 35	< 20	
<b>Infrastructure costs</b>			
Roads	\$5086.56	\$30,378.88	\$25,292.32
Water and sewerage	\$14,747.62	\$22,377.46	\$7629.84
Telecommunications	\$2576.11	\$3711.85	\$1135.74
Electricity	\$4082.12	\$9696.51	\$5614.39
Gas		\$3690.84	\$3690.84
Fire and ambulance		\$302.51	\$302.51
Police		\$388.42	\$388.42
Education	\$3895.46	\$33,147.27	\$29,251.81
Health (hospitals, etc.)	\$20,114.87	\$32,347.33	\$12,232.46
Total infrastructure	\$50,502.74	\$136,041.07	\$85,538.33
<b>Transport costs</b>			
Transport and travel time	\$206,542.06	\$342,598.10	\$136,056.04
Roads and parking	\$46,937.54	\$154,826.10	\$107,888.56
Externalities	\$2219.88	\$9705.38	\$7485.50
Total transport	\$255,699.48	\$507,129.58	\$251,430.10
<b>Greenhouse gas emissions cost</b>			
Offset cost (\$25/t)	\$2500.00	\$5400.00	\$2900.00
Social cost (\$215/t)	\$21,500.00	\$46,440.00	\$24,940.00
Total greenhouse	\$2500.00	\$5400.00	\$2900.00
<b>Physical activity costs</b>			
Inactivity costs*		\$4229.95	\$4229.95
Productivity loss		\$34,454.90	\$34,454.90
Total activity costs		\$38,684.85	\$38,684.85
<b>Total (excluding social cost)</b>	<b>\$308,702.22</b>	<b>\$687,255.50</b>	<b>\$378,553.28</b>

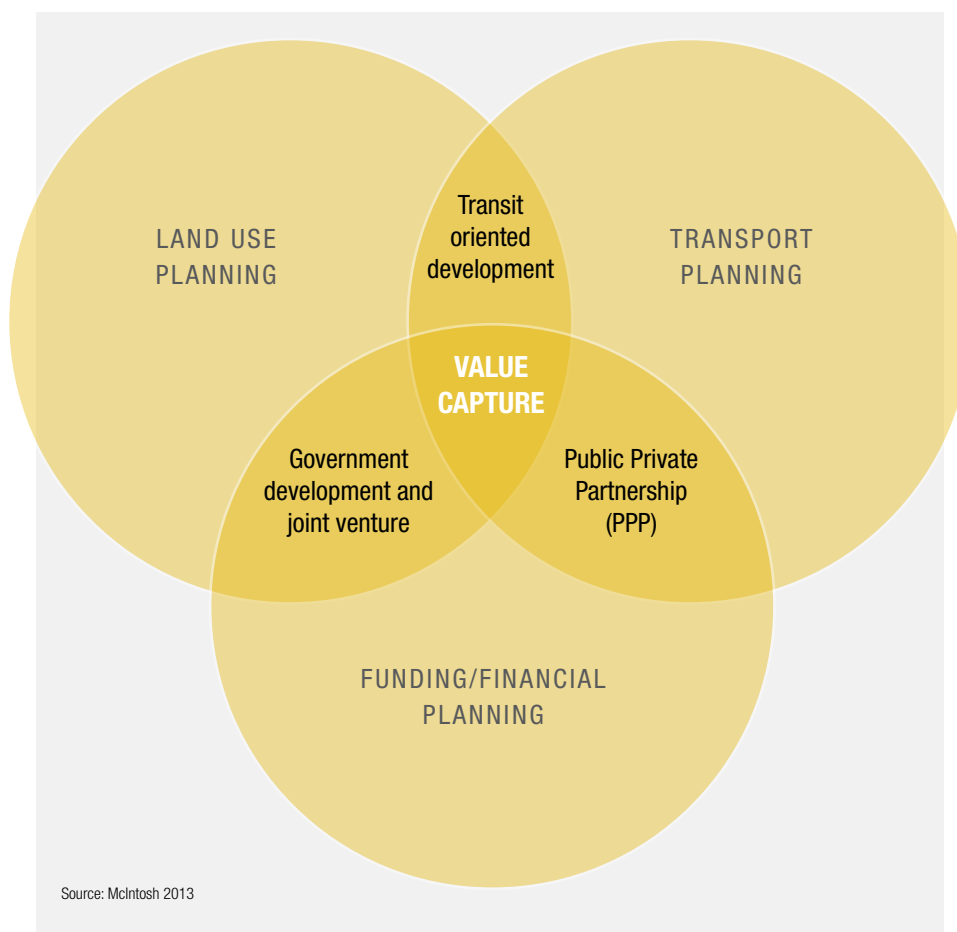
\* Includes social costs and direct and indirect costs and obesity costs.    +Typical characteristics for an Australian city

Source: Matan, A., and Newman, P. (2012) Jan Gehl and new visions for walkable Australian cities, *World Transport Policy and Practice*, 17 (4): 30-3, based on Trubka R, Newman P and Billsborough D (2010) *Costs of Urban Sprawl (1) – Infrastructure and Transport*, *Environment Design Guide*, 83: 1-6.

### b. Avoidable land development costs

Even more significant (though rarely done) is the analysis of costs that can be avoided in different modal and land use options in assessment of transport infrastructure projects. Rail transit and its ability to deliver spatial efficient land uses can enable reductions in urban sprawl that invariably are heavily subsidised and have many external costs. Trubka demonstrates considerable cost savings and health benefits from rail based transit oriented development, as opposed to low density car-based development, and the induced land use enabled by differing infrastructure options can be included in any transport assessment.<sup>10</sup> The differences between redeveloping closer to the city, and around transit infrastructure, or new greenfields development are set out in Table 1.

**FIGURE 1**  
**CONCEPTUAL FRAMEWORK FOR INTEGRATION OF LAND USE, TRANSPORT AND FUNDING/  
 FINANCIAL PLANNING, WITH EXAMPLES OF TRADITIONAL INDIVIDUAL TRANSPORT  
 INTEGRATION**



### New approaches in infrastructure funding – land value capture

It is not new to recognise the value of integrating transport and land use<sup>11,12</sup> but the need to integrate these two with finance is relatively new (Figure 1), and is conceptually more challenging.<sup>13,14</sup> Good rail systems increase land value<sup>15,16</sup>, so value capture is the quantification of these induced or activated benefits and the mechanism for returning them to defray the cost of the infrastructure investment.<sup>17,18,19</sup>

Although the impact on land value from rail is well known, the same value increase has not been found around bus systems. Indeed, there are even some examples that actually find the impact of proximity to Bus Rapid Transit stations to be negative.<sup>20</sup> This difference between bus and rail is understood to be due to the lower noise and

emissions of rail, and due to rail speed and capacity benefits over private vehicles.<sup>21</sup> In addition to the operational differences between modes, rail is an attraction to developers due to its permanence, which provides surety for long term land development investment and hence is an attraction to live or work near.<sup>22,23,24,25</sup> However, integrated bus and rail projects can widen the accessibility benefits in a corridor.<sup>26,27</sup> The increased accessibility due to investment in public transport infrastructure is monetised into the land use catchment's land values through an increase in the travel opportunities for the catchment.<sup>28</sup>

This increase in land value therefore reflects a reduction in the generalised cost of travel, representing a '*willingness to pay*' for a reduction in this economic cost.<sup>29,30</sup> An international collation of residential and commercial value premiums from rail transit projects in the United States and the United Kingdom<sup>31</sup> demonstrated that there were in fact significant increases in transit catchment residential land values (10 per cent+), property values (5–45 per cent) and residential unit rents (5–30 per cent) and an even greater impact on transit catchment commercial property (1–65 per cent) and office rents (1–60 per cent).

International studies<sup>32</sup> and Australian research<sup>33</sup> demonstrate that the value uplift is real, so the question becomes: How can this increase in value be captured? A report by McIntosh<sup>34</sup> shows that a five-step process can work in the following way:

1. Accessibility benefits analysis to demonstrate the land area where owners will benefit most from the new infrastructure.
2. Differential land value data collection between areas with varying accessibility.
3. Assessment of the various potential financing mechanisms available in the city through public and private value capture, such as government land and parking revenues.
4. Economic and financial assessment of how much land value can contribute to the funding of the rail through a dedicated fund based on land value taxes that are going to increase due to the new rail system.
5. Delivery through a planning mechanism and a fund established to bring it together, probably in a Public Private Partnership (PPP).

The central questions remain about whether rail can work in car dependent areas and if so there could be a potential for using land value capture as the way to help fund it. McIntosh has found that not only is the patronage dramatic on the new rapid rail lines in Perth but the land value increases are just as dramatic.<sup>35</sup> The methodologies used have been able to show how residential and commercial land value increases can be calculated.

These values are substantial and suggest that land value capture mechanisms could be used to build new rail lines, even in a highly car dependent city like Perth. Residential values were found to go up between 18 per cent on traditional rail lines and 40 per cent on the new fast rail lines; commercial values go up over 40 per cent. This value passes into various local, state and Federal taxes; if hypothecated it can be used to assist in the funding of the infrastructure. It may even be possible to build rail using private sector funding of the capital and an ongoing operational fund using value capture that takes such projects 'off the books' therefore freeing up State Treasury funding limits.

## 4. Conclusions and policy recommendations

The need to build new transit infrastructure is fully back on the agenda in most cities – it really needs to be ‘in the knitting’. With the help of new techniques such as agglomeration economies, avoidable costs and value capture it is possible to find new ways of funding and financing urban rail, even going to the extent of considering fully private funding based on value capture.

The following recommendations for infrastructure policy are suggested to further Australia’s economy:

- Depoliticise the infrastructure investment process.
- Understand the cultural changes that are driving Australia’s economic infrastructure needs.
- Infrastructure funding to have a non-modal bias for project funding.
- Metropolitan agglomeration benefits for projects to be fully included in the infrastructure assessment process.
- The consideration of the metropolitan economic marginal flow on costs of the infrastructure investment to be calculated and included in the economic assessment process.
- The calculation and analysis of the financial value created by the investment in infrastructure to be included in the financial business case, with each project having a value capture component embedded in it.

It is hard to imagine the Federal Government not wanting to be part of this kind of policy framework which involves all levels of government, and comprehensively assesses the financial value created, the economic agglomeration and cost avoided as well as the potential to capture land value for funding. This surely is the kind of knitting needed to help economically transform our cities for the future.

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## 2.7

# Smart infrastructure

## Catherine Caruana-McManus



Catherine Caruana-McManus is a planner, economist and digital economy strategist who oversees IBM's Smarter Planet and Cities organisation.

Catherine has over 25 years' experience in sales, consulting, product development and delivery across the technology, innovation, digital media, telecommunications and urban development sectors. Prior to joining IBM in 2006, Catherine held senior executive roles for MC<sup>2</sup> Consulting, PMP Ltd, Telstra and the City of Stonnington in Victoria. Some of her most notable projects include being the founding member of White Pages Online™, the 2000 Sydney Olympics, the Melbourne Docklands and Australia's mobile and broadband networks.

Catherine was recently awarded the prestigious Best of IBM Award and is also an Ambassador for the Whitelion Foundation. She holds a Bachelor of Applied Science in Economics and Urban Planning, Masters in Market Research and Diploma in Management.

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## Overview

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Australia is at a pivotal point in its history. In the same way that the creation of our rail, power and telecommunications networks accelerated economic growth and opened up many other opportunities, broad-based communications including the National Broadband Network (NBN) and digital technologies will pave the way for the next era of Australia's development.

As all systems are interconnected, our cities and regions need to be supported by 'smart' systems that create better connections between government, industry, community and our people. Data and information from across the public and private sectors should be integrated to improve the overall efficiency and effectiveness of our nation's healthcare, education, social services, transport, energy, water and human capital networks. By applying innovation into our critical infrastructure to support economic development, we can improve the efficiency of age-old infrastructures as well as potentially offset new investment in the long term or improve the overall performance of the asset in the short term.

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## Key challenges

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Australia currently has two of its major cities (Melbourne and Sydney) in the World's Most Liveable Cities Index.<sup>1</sup> Both Sydney and Melbourne are experiencing a significant portion of rapid urban population growth. Australia's urban cities and region face a number of challenges. These include the:

1. Impacts of climate change and the changing nature of our energy economy;
2. Growth and ageing of our population;
3. Increasing costs of living, including transport, access to jobs and housing affordability;
4. Impacts of congestion in our cities and constrained investment in transport;
5. Public safety and security issues, including dealing with natural disasters, crime and border security; and
6. The complexity of servicing citizens who are highly mobile and diverse.

Superfast ubiquitous broadband, analytics and advanced software will be able significantly to address many of these challenges. However, with our current way of thinking and action, Australian cities and regions will continue to underperform in their ability to attract new levels of investment across industry and employment opportunities. The challenges for our large cities differ according to size. For example, our largest cities – Sydney and Melbourne – are struggling with significant traffic congestion, despite significant investment in new road infrastructure, whereas Perth is dealing with housing affordability and skills shortages.

Australia has an excellent opportunity to continue to have the world's most desired cities. However, it must invest in deploying and utilising digital infrastructure such as mobile and fixed phones, satellite TVs, computer networks, e-commerce, internet services and sensors; and ubiquitous connectivity to enable greater entrepreneurial activity, productivity improvement, economic growth and social connections.

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## The role of technology in Australia's future

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The perfect storm of innovation is currently happening across Big Data, analytics, cloud, mobile, social, smart computing technologies and fast broadband, enabling government at all levels to address the growing demands and expectations of the market in a time of declining budgets and fiscal constraint. Digital transformation will encourage close collaboration with customers in every facet of business, and is rapidly shaping industries, as well as people's expectations about everyday operations, products, processes and services.

The world's systems and industries are also becoming more instrumented, interconnected and intelligent. Every two days, we now generate the equivalent of all the data that existed in the world up to 2003. This is Big Data and it makes up a vast new natural resource that can, when applied to the world's challenges and the innovations that may solve them, revolutionise industries and societies.

We are also seeing the changing nature of work practices meaning that people's work environments are shifting from the traditional workplace-based employment to a model of anytime, anywhere workplaces. In fact, a recent economic report by IBIS World predicted that one in four people will be working from home at least part-time by 2050.<sup>2</sup> Deloitte Access Economics predicts that through telework, the NBN will create 25,000 additional jobs by 2021, with an increase in labour force participation.<sup>3</sup>

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## How smarter cities can improve the liveability and prosperity of our urban and regional centres

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Smarter cities by definition are those that embrace the clever use of information and communications technology to improve the productivity of a city's essential infrastructure and services, such as to reduce energy inputs and carbon outputs, as well as engage with citizens using latest collaboration and mobility solutions.

By deploying new enabling technologies, we can make our basic infrastructure more efficient and reliable: our power grids; our water networks; our transport systems.

By increasing the amount of instrumentation, we can gather more data about performance. We can then use broadband, Long Term Evolution (LTE) and wireless networks to pull the data back to central points for analysis. Then based on that analysis, we can make better operational and investment decisions in real time.

We also have the opportunity to build a more stable and inclusive society. There is a growing disparity between rich and poor in our cities. We can use broadband-based communications to ensure that people in cities and remote locations alike have comparable access to education, health services and other essential support. This can be achieved by supporting investment in digital hubs, powered by fast broadband, that support education, healthcare and small business applications, as well as smart work hubs and digital literacy learning environments.

For example, there are already 250,000 personal medical alarms in use in Australia, using existing phone lines. With the roll-out of the NBN, these devices' functionality and purpose will grow and can support the ageing population as families decide to stay in their own homes and receive care in a more connected way.

In this new century, growth will be increasingly driven by talent – the skills and knowledge of a highly educated, innovative, mobile workforce, and by the ability of its citizens and cities to absorb, commercialise and extend innovation. If we factor in the changing nature of work and the rise of mobility then cities and regions can offer greater liveability and provide flexibility in work-life balance. Teleworking can also reduce traffic congestion by enabling people to have the choice as to whether they take the trip to work during peak hour or use that time to log into their office remotely.

Overall, we can use our networks to promote social cohesion and inclusiveness through better communication. We can also support people to be actively engaged in the digital economy by promoting digital literacy among all members of the community. It can be used to engage people in building a better future.

Case Studies of smarter industries and communities include:

- **Telehealth to the Home – Armidale and Kiama, NSW:** Leveraging the ubiquity, high-speed and network reliability of the NBN, a healthcare in the home trial is being conducted for people living with diabetes, chronic heart and lung disease and hypertension. The trial is a joint venture between the Hunter New England Local Health District and the Australian Government's Department of Broadband, Communications and the Digital Economy and is being funded under the Digital Regions program. Specifically the trial enables people to receive in-home telehealth monitoring of patient health and wellbeing indicators such as blood pressure, glucose levels and lung function supported by home video consultations to allow patients to communicate with relevant health providers through high quality video and wellness and preventative care support. The trial also includes a mental health element enabling young Australians (aged 12 to 25) with, or at risk of, mental illnesses or drug-related problems to better access NBN-enabled headspace mental health services.
- **Northern Territory Power and Water Corporation:** This initiative has installed intelligent asset management technology in its water network. Combined with the use of more sensors and meters in the field, this has revolutionised the way that this utility maintains its infrastructure. Given the size of the Territory, a pipe could leak for some time before it's even found. By increasing intelligence in that system, NT Power and Water is now better able to catch problems as they occur, and to find related issues. Their system is saving time and money, while increasing the resilience of the entire system.
- **Geraldton, Western Australia – Cloud-Enabled Green Digital Hub for Business and Community:** Geraldton is projected to grow rapidly over the next decade, with more than \$27 billion of planned investments for the region. Alongside this enormous potential, Geraldton faces significant challenges, including internet access, rising energy costs and energy capacity concerns. Geraldton has the potential to become an entrepreneurial hot spot with a global presence. Market Creations together with IBM recently deployed a cloud-enabled data centre to support the city's vision of becoming a technologically advanced and carbon-neutral digital hub. The city has embraced the NBN by enabling digital services for the community as well as business services for industry as a new opportunity for economic diversification and prosperity.
- **Townsville, Queensland – Smart Water Pilot:** The city is embarking on a smart water pilot that is breaking new ground in the way data is collected and analysed in near real-time. At its core, it will help identify and enable ways for the people of Townsville to drive water conservation by empowering residents with smart technology to assist with positive behavioural change. By using IBM's Big Data expertise for

the pilot project, Townsville City Council is able to deliver near real-time information about daily water usage from digital water meters to the Council and residents via a web portal and reduce overall consumption as well as offset future infrastructure investment.

The way entertainment, health, education and government services are accessed will be completely transformed in the future.

Australia's cities will be smarter, safer, greener and more productive if they embrace the benefits of leveraging readily available as well as emerging digital technologies and collaborate across government, industry and community to enable a more innovative and progressive approach to managing the growth of our cities and regions.

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#### Endnotes

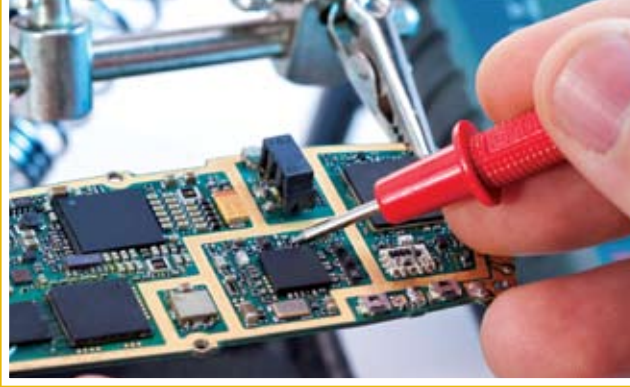
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# SECTION 3.0

## Incentivising innovation

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- 3.1 Innovation Australia: How we measure up  
**Professor Roy Green and Dr Danielle Logue**
  - 3.2 The innovation ecosystem  
**Professor Göran Roos**
  - 3.3 Policy innovation for innovation:  
Income-contingent loans  
**Professor Glenn Withers and Dr Nitin Gupta**
  - 3.4 A proposal for industry-led innovation consortia  
**Professor Beth Webster**
  - 3.5 Sectoral revolution through technological  
developments  
**Dr Ian Oppermann**



## 3.1

# Innovation Australia: How we measure up

## Professor Roy Green and Dr Danielle Logue



Professor Roy Green is Dean of the UTS Business School at the University of Technology Sydney. His doctorate is from the University of Cambridge and he has worked in universities, business and government in

Australia and overseas. Roy has also published in the areas of innovation policy and management and undertaken projects with the OECD and European Commission.

Roy has contributed to the Australian Government's Innovative Regions Centre, CSIRO Manufacturing Sector Advisory Council and Enterprise Connect Advisory Committee. He conducted the Review of the Textile, Clothing and Footwear Industries in 2008 and led Australian participation in a global study of management and productivity in 2009. Last year, Roy convened the Australian Design Integration Network with CSIRO and was appointed to the Manufacturing Leaders Group.



Dr Danielle Logue is a senior lecturer in innovation, strategy and organisation, having recently joined the UTS Business School after completing a Doctorate of Philosophy and Master of Science at Saïd

Business School, University of Oxford, graduating with distinction. During her doctoral studies, Danielle was also a visiting scholar at Stanford University, USA. Prior to Oxford, Danielle's professional experience centred on development, international aid, government policy, industry development, innovation and entrepreneurship. She has consulted for the World Bank and held positions at IDP Education, NSW Department of State and Regional Development and the Australian Department of Industry, Innovation, Science, Research and Tertiary Education.



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## Introduction

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Australia's long-running commodity prices boom has come to an even more abrupt end than most economists and policymakers anticipated. While new investment in resources production will continue to drive an expansion of output and exports, it will attract lower rates of return than was previously the case and provide little or no terms of trade boost to our national income. While this scenario may not have been widely foreseen, it was already canvassed in CEDA's 2007 publication *Competing from Australia* with reference to the experience of other countries:

"Australia is currently experiencing an unprecedented boom in its primary commodity exports, and a reversal in the decades-long deterioration of its terms of trade, as markets are reshaped by China's entry into the world economy. Whether this boom proves to be temporary or longer lasting, significant adjustments will be required for Australia to take advantage of its good fortune and prepare for an uncertain future. Possible scenarios for Australia in coming years include the so-called 'Dutch disease', where a rise in the exchange rate associated with North Sea gas discoveries made much of Dutch industry uncompetitive, or Britain in the 1980s, where a North Sea oil windfall was squandered on domestic consumption, or alternatively Norway, which has leveraged its oil wealth for strategic investment in research, education and infrastructure."<sup>1</sup>

Paradoxically, the commentators who mistook the commodity cycle for longer term structural change, with the claim that manufacturing would be superseded by mining and services, are now among the most conspicuous in the search for new sources of growth and competitiveness. Equally, however, trade exposed sectors such as manufacturing have a more formidable competitiveness challenge than in the recent past due to the combination of a strong currency and productivity slowdown. In this context, the future of Australia's economy and living standards will depend more than ever on a transformation of our productivity performance, which in turn must be driven by a coordinated, strategic approach to innovation policy and management.

Here we consider the evolution in Australian innovation policy from *Backing Australia's Ability*, with its strong focus on public investment in science and technology, to the 2008 Cutler Review's broader view of the national innovation system, leading to the emphasis on talent and creativity in the 2009 innovation white paper *Powering Ideas*, and finally to the 2012 Prime Minister's Manufacturing Taskforce and the development of an 'Innovation Partnerships' program in the *Plan for Australian Jobs*. We examine this policy evolution and review future options in the context of a high wage economy with relatively low productivity growth. Clearly, this is an unsustainable combination as it means that unit labour costs are increasing much faster than in other advanced countries with the prospect that we cannot match the intensifying global competition at the high end of the value chain or from lower cost, faster growing emerging economies.<sup>2</sup>

In these circumstances, where terms of trade are wound back and the exchange rate remains relatively high, our argument is that the strategy to improve our productivity performance will depend largely on a greater rate of technological change and innovation, including non-technology innovation such as design-led innovation, new business models and the development of management and workforce capability. It will also require smart specialisation to promote the growth of national and regional innovation ecosystems, encompassing micro-multinationals as niche suppliers in global value chains, in conjunction with a technology foresight to identify future enabling technologies and capabilities. The effectiveness of these innovation ecosystems will depend on deep collaboration among businesses, public agencies and research

and education institutions, with an increased demand-side emphasis on enhancing enterprise absorptive capacity through targeted public procurement and business improvement services, such as Enterprise Connect, as well as the supply of research and skills. With the Rudd and Gillard Governments, Australia had its first minister for innovation and a second who was given the opportunity of a comprehensive joined up portfolio of innovation, skills and productivity. The problem both ministers faced was complacency induced by the commodity boom, the financial constraints ultimately brought about by the end of the boom and the ideological opposition to any government intervention beyond public research and research and development (R&D) tax concessions. The effectiveness of the Abbott Government's new Minister for Industry will depend on his scope and ability to address this problem.

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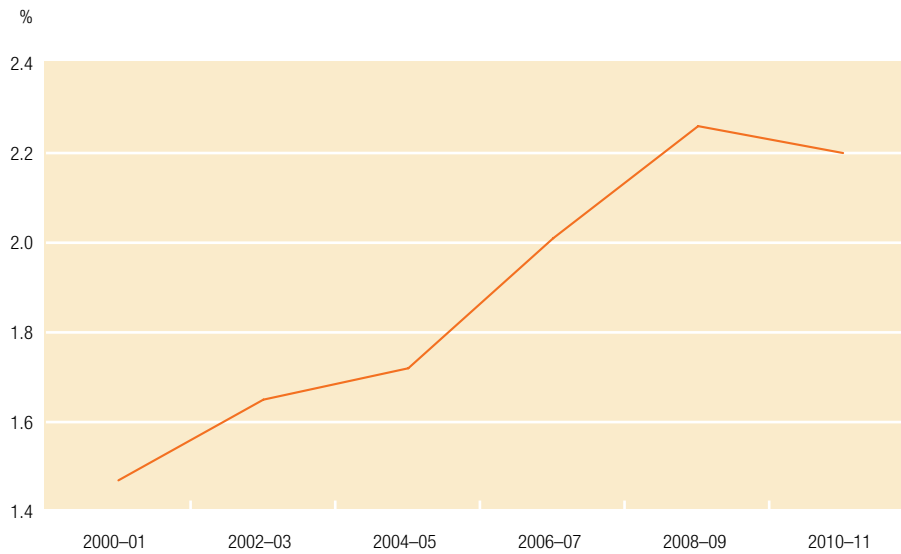
## Tracking Australia's innovation system

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In recent years, Australia, like most advanced countries, has conceptualised innovation policy in terms of a national innovation system, which has been depicted as the “network of institutions in the public and private sectors whose activities and interactions initiate, import, modify and diffuse new technologies” and the “elements and relationships which interact in the production, diffusion and use of new, and economically useful, knowledge”.<sup>3</sup> While previously innovation was identified with investment in science and technology and related skills development, the understanding of innovation has now been broadened to encompass management and organisational change, as well as creativity and design, which are crucial to innovation capability and performance at the level of the enterprise. The pace and scale of innovation now demands active collaboration across firms, industries and economies with a significant role for government in promoting innovation through direct funding support, tax incentives, public procurement and the co-production of innovation. In this context, Australia's innovation performance has been described as mixed, with some world class achievements, considering the relatively small size of the economy, and some continuing deficiencies.<sup>4</sup>

While R&D is no longer the total sum of innovation performance, if it ever was, Australia's gross expenditure on R&D (GERD) as a proportion of gross domestic product (GDP) grew steadily from 2000 and has levelled off in the last few years. According to Australian Bureau of Statistics data, R&D spending reached a high point of 2.25 per cent of GDP in 2008–09, with the share of business expenditure on R&D (BERD) increasing to almost two thirds of the total over the previous decade and the government share declining to one third. GERD then fell back marginally to 2.22 per cent of GDP in 2010–11, primarily as a result of a slower rate of growth of business R&D expenditure. According to the Organisation of Economic Co-operation and Development (OECD), Australia's R&D intensity remains below the OECD average, but is higher than that of the EU27.<sup>5</sup> While the growth of R&D spending has now stalled in Australia, at least as a proportion of GDP, the most recent OECD data indicate an overall real growth rate for GERD of 1.3 per cent in 2010 and 2.1 per cent in 2011 for the OECD area driven by a gradual recovery in business R&D (2.8 per cent) and sustained growth in research in the higher education sector (2.5 per cent), despite a reduction in government R&D (–1.2 per cent).<sup>6</sup> On the other hand, Australia's GDP growth has been well in excess of the OECD average, partly as a result of the continuation of the commodity boom, which is embodied in a terms of trade effect rather than underlying productivity growth, and partly due to a well calibrated response by the Australian Government to the global financial crisis.<sup>7</sup>

**FIGURE 1**  
**GROSS EXPENDITURE ON R&D (PERCENTAGE OF GDP)**



Source: ABS 2012

A major problem in Australia is that the growth in R&D spending does not seem to be translating into improved innovation outcomes. The *Australian Innovation System Report* notes that, “despite significant growth in R&D expenditure and intellectual property registrations (traditional measures of national innovation systems), the proportion of innovation-active businesses has hovered around 41 per cent since 2006-07 and R&D expenditure is dominated by a small number of large businesses in Australia”.<sup>8</sup> This is occurring even with evidence suggesting that compared with businesses that do not innovate, innovative Australian businesses are twice as likely to report increased productivity.<sup>9</sup> Disturbingly, the report finds that the proportion of businesses facing one or more barriers to innovation increased to almost half in the last five years. These barriers include market failures such as cost barriers, where the cash flow or profitability of firms is insufficient to permit them to invest in productivity enhancing measures, or where deficiencies in capital markets prevent firms accessing capital at a sufficiently low price to effect improvements. In addition, there may be inadequate information on the part of managers regarding opportunities and benefits of innovation or inadequate management resources to implement change. From a broader perspective, an Open Forum survey for the Society of Knowledge Economics found that key impediments to innovation are short-termism in political and business thinking, under investment in education and infrastructure and risk-averse and insurance driven attitudes.<sup>10</sup>

Many of these impediments apply with particular force to small sized firms, with data showing that the propensity of firms to innovate, the intensity of that innovation, and expenditure on innovation as a share of sales or value added, is attributed to larger firms in our innovation system. Indeed, large firms, with more than 100 employees are more than twice as likely to innovate as small firms, with less than 20 employees, and large firms account for the bulk of innovation expenditure despite representing only a small minority of total firms in Australia.<sup>11</sup> Such findings have important implications for the role of government in facilitating and providing an effective policy framework for innovation. Small and medium sized firms, potential micro-multinationals, can benefit from technology diffusion and demonstration projects provided by large firms, access to high quality business and management improvement services, incentives to undertake capital investment and R&D, support for workforce training and the development of high performance work and management practices.<sup>12</sup>

Significantly, the *Australian Innovation System Report* points out that while Australia's performance in technological innovations (product and/or process) has remained steady or declined, it has begun to improve in relation to managerial, organisational and marketing innovations.<sup>13</sup> Nevertheless, the Report also confirms the finding that Australian business management capability and innovation culture remains poor by international standards and may be a factor in the declining rates of productivity growth. Increasingly, we have seen how public policy is recognising and supporting different forms of innovation and is placing a strong emphasis on the development of management and innovation capability at the enterprise level as part of its productivity-enhancing agenda: "One future focus of the Australian Government's industry and innovation policies will be on building innovation capacity and performance at the enterprise level... Government support for business innovation... must recognise the complexity of the innovation process and the different forms that innovation can take".<sup>14</sup>

This approach has been reinforced by the white paper on *Australia in the Asian Century*, which notes that, "Businesses are adopting new models of innovation, focusing more on better integrating internal activities, such as marketing, operations and design, and less on traditional research-intensive approaches. At the same time, they are more open to external ideas and the possibility of new routes to market, engaging with a larger number and wider range of collaborators".<sup>15</sup> In addition, the report of the Non-government Members of the Prime Ministers' Manufacturing Taskforce recommended the development of enterprise-level innovation capability, including enhancements in the scale and scope of Enterprise Connect, but also increased support for collaboration between industry, public agencies and research and education institutions in "innovation hubs and precincts".<sup>16</sup> This is a prevalent and well tested model in knowledge-based economies and regions around the world and was adopted by the former Australian Government in its Innovation Precincts Program, later retitled Innovation Partnerships.<sup>17</sup>

## Innovation performance in a global context

Australia's recent economic history suggests that our commitment to innovation is sharpened by adversity, but conversely blunted by the wealth effects of a commodity boom, which engenders what former prime minister Keating depicted as policy indolence. It was as much in response to the lack of reform imagination of the last Coalition Government as to the formidable challenges ahead that Rudd Gillard Labor formulated

**TABLE 1**  
COMPARISONS OF LABOUR AND ENVIRONMENTAL PRODUCTIVITY AND R&D, 2005-10

	Labour productivity, GDP per hour worked in USD, 2010	Annual growth rate, 2005-10	Environmental productivity, GDP per unit of CO <sub>2</sub> emitted in USD, 2009	Annual growth rate, 2005-09	GERD, as percentage of GDP, 2010 2.82	Annual growth rate, 2005-10	GERD publicly financed, as percentage of GDP, 2009	Annual growth rate, 2005-09
Australia	49.8	0.7	2.24	2.2	2.24	10	0.78	5.6
Germany	53.6	0.8	3.94	2.9	2.82	3.7	0.84	4.9
Norway	75.3	-1.0	7.14	0	1.69	3.9	0.84	6.8
Finland	47.9	1.1	3.46	0.7	3.88	3.2	1	3.2
Sweden	49.9	0.4	8.27	4.7	3.4	0.6	1.01	3.6
Canada	45.2	0.5	2.45	2.4	1.74	-1.2	0.83	1.6

Source: OECD. (2012a). OECD Science, Technology and Industry Outlook. Paris, OECD. <http://www.oecd.org/sti/oeecdsciencetechnologyandindustryoutlook.htm>

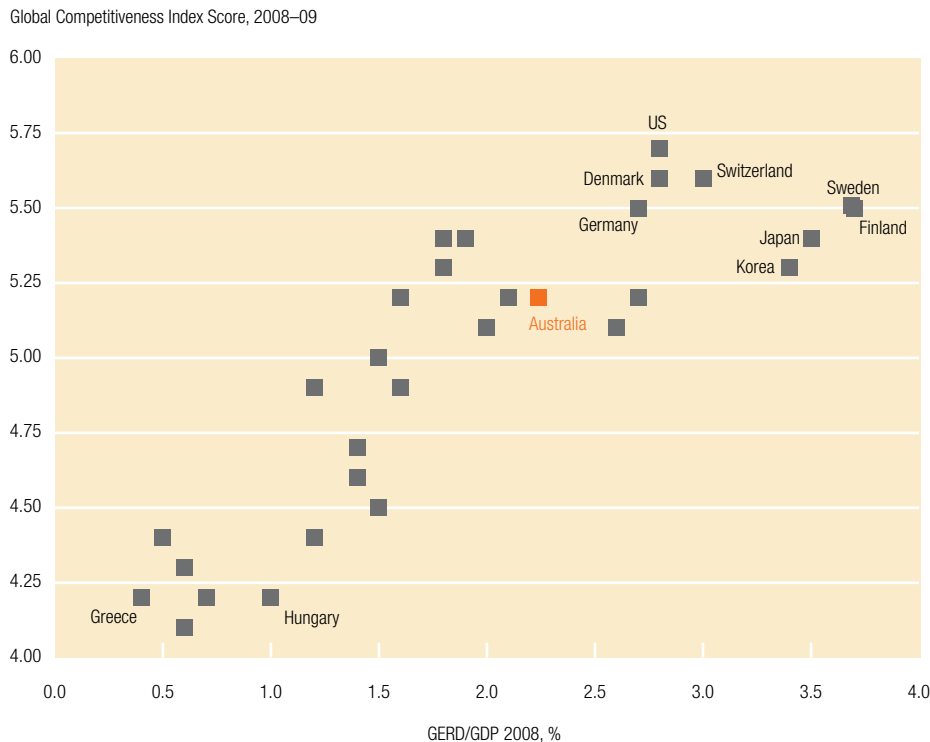
its own more far reaching but inadequately resourced innovation policy. Now a new Coalition Government once again has the opportunity to take up the reform baton.

Significantly, Australia dropped in the 2011–12 global competitiveness rankings to 20 out of 142 countries; and while we perform well in some areas, we languish at 26 for technological innovation and business sophistication, which are “critical drivers of competitiveness for advanced economies”.<sup>18</sup> The World Economic Forum Report pointed out that although there are economic gains from improving institutions, building infrastructure, reducing macroeconomic instability and improving human capital, “all these factors eventually seem to run into diminishing returns. The same is true for the efficiency of the labour, financial, and goods markets. In the long run, standards of living can be enhanced only by technological innovation”.<sup>19</sup> In addition, the report notes the importance of industry clustering for innovation:

“When companies and suppliers from a particular sector are interconnected in geographically proximate groups, called clusters, efficiency is heightened, greater opportunities for innovation in processes and products are created, and barriers to entry for new firms are reduced. Individual firms’ advanced operations and strategies (branding, marketing, distribution, advanced production processes, and the production of unique and sophisticated products) spill over into the economy and lead to sophisticated and modern business processes across the country’s business sectors.”<sup>20</sup>

According to the analysis of advanced economies by the OECD *Science and Technology Outlook*, Australia was “one of the world’s most resilient during the past five years”, having benefited significantly from the global commodities boom, but it has not stimulated the interest in innovation and knowledge-driven growth that may be found in other countries, particularly the Nordic countries and some in East Asia such as Singapore, Korea and Taiwan.<sup>21</sup> As may be seen from Table 1 above, Australia’s

**FIGURE 2**  
**GLOBAL COMPETITIVENESS AND R&D INTENSITY (GERD/GDP), 2008**



Source: Department of Industry, Innovation, Science, Research and Tertiary Education (DISRTE). (2012). *Australian Innovation System Report 2012*. Commonwealth of Australia, Canberra; World Economic Forum. (2012). *Global Competitiveness Report*. Geneva, World Economic Forum. [http://www3.weforum.org/docs/WEF\\_GCR\\_Report\\_2011-12.pdf](http://www3.weforum.org/docs/WEF_GCR_Report_2011-12.pdf)

comparative rate of growth of GERD in general, and BERD in particular, is higher than the OECD median, but more competitive countries (in terms of innovation) have much higher investments in intangible capital, rather than physical capital, as a share of GDP. *The Australian Innovation System Report* characterises Australian business as a fast follower rather than a first mover – we are not one of the leaders when it comes to the proportion of new-to-world innovations and their impact on competitiveness.<sup>22</sup> The report also shows the overall relationship between R&D intensity and global competitiveness among OECD countries, see Figure 2 above.

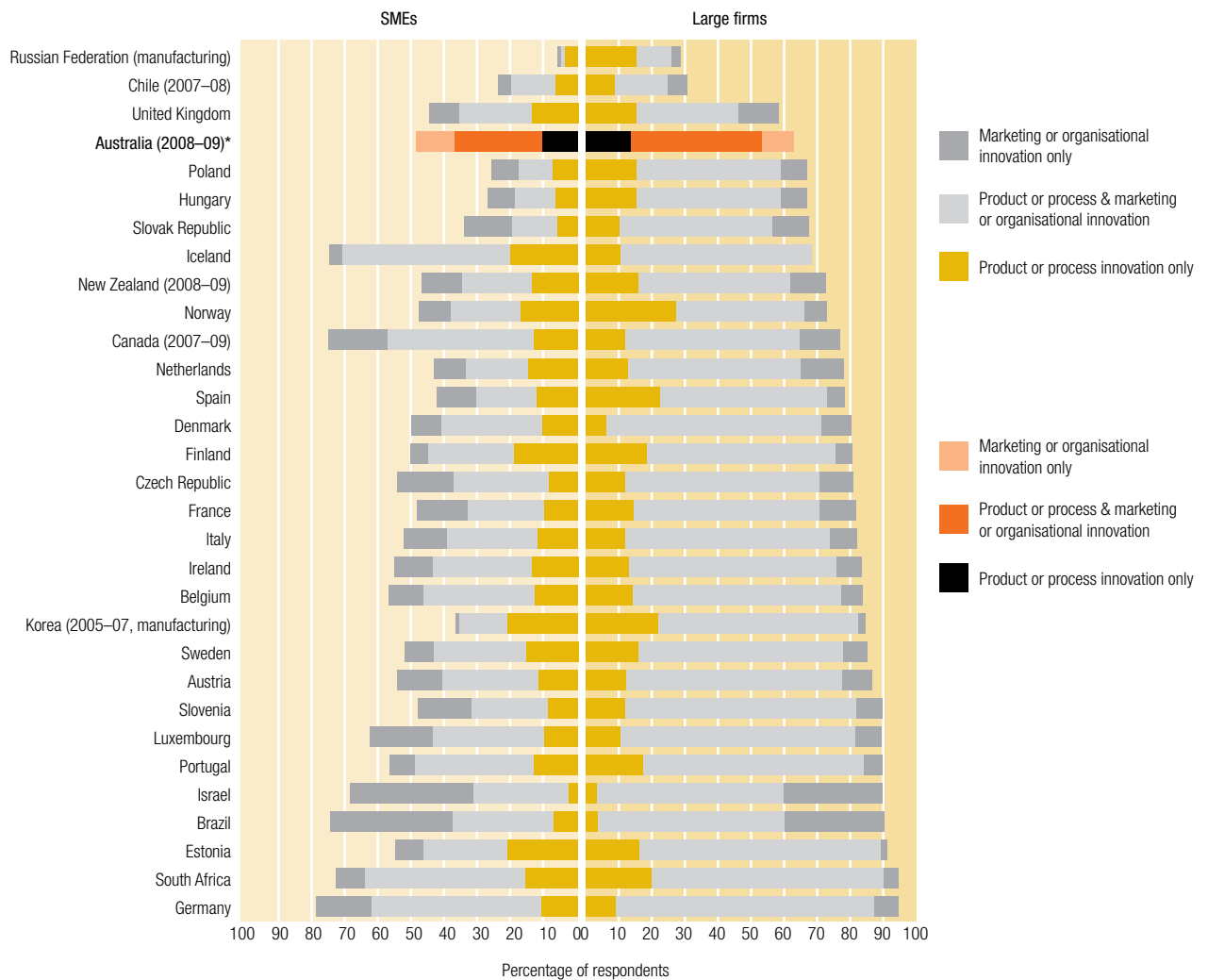
Policymakers around the world have recognised that innovation is much more than science and technology and encompasses various forms of non-technological innovation, including changes in organisational culture, management practices and leadership and business model innovation. Chesbrough argues that business model innovation has become as important as technological innovation, with the observation that cutting edge technology delivered through a mediocre business model may actually be less profitable than a mediocre technology delivered through a cutting edge business model.<sup>23</sup> As the *Australian Innovation System Report* points out, “business models involve a significant reorganisation of inputs such that significant productivity gains and other value can be realised without necessarily large capital expenditure or significant technological innovation”.<sup>24</sup>

In this context, the policy emphasis in advanced national innovation systems is shifting. For example, Finland’s agency for technology and innovation, Tekes, has redirected substantial funding from R&D driven projects towards non-technological innovation, services activities and SMEs. Similarly in Canada, another country with a large resources sector and poor productivity performance, almost half of R&D activity now takes place in the services sector, and the growth of non-technological innovation is reflected in trademark data, with SMEs playing a key role.<sup>25</sup> In addition, the strategic repositioning of firms and organisations through more innovative business models increasingly embodies design thinking, a human-centred problem solving approach which is being used to shape the design of products, services, businesses and policies. Many governments have begun to focus on the role of creativity and design and how it can be fostered as an integral part of innovation systems and as an enabler of productivity and innovation. Far from superseding the role of manufacturing in high-cost economies, design led innovation is reconstructing traditional sources of competitive advantage and creating new ones.<sup>26</sup> As the Prime Minister’s Manufacturing Taskforce notes:

“Until recently, Australian industrial design has primarily been focused on efficiency concepts such as lean manufacturing and resource productivity. However, today design is evolving as a broader and more compelling concept for business. Design should be seen as a ubiquitous capability for innovation... This perspective on design has led in recent years to the rapid development of the field of ‘design thinking’ (or integrative thinking). This sees design as combining user understanding, creativity and analysis in tackling complex practical challenges. Design thinking is now encouraging both start-up and firm growth, with new programs emerging that recognise how scientific, managerial and creative support can help firms get off the ground and grow.”<sup>27</sup>

This approach has also been promoted in the *Australia in the Asian Century* white paper which argued that, “Using creativity and design-based thinking to solve complex problems is a distinctive Australian strength that can help to meet the emerging challenges of this century”.<sup>28</sup> If we look at firm strategies towards these different types of innovation, the evidence suggests that technology innovation and non-technological forms of innovation such as organisational and managerial innovation tend to occur together. In most countries, however, SMEs tend to focus more on marketing and

**FIGURE 3**  
**INNOVATION STRATEGIES BY FIRM SIZE, 2006–08**

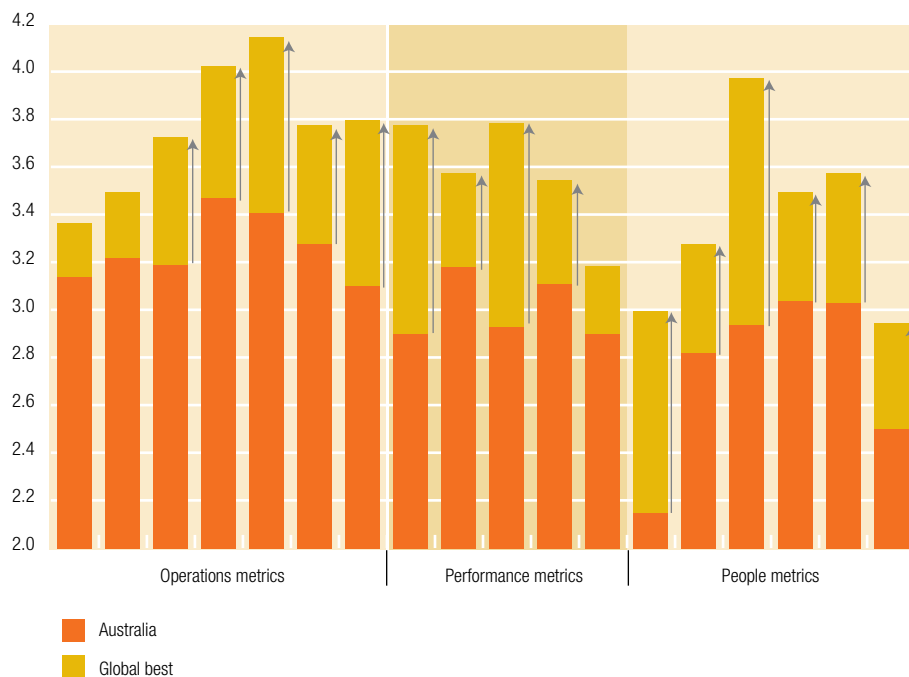


organisational innovation and large companies on product and process innovation. While Australia's large firms rank almost last in the OECD on these innovation strategies, due to the predominance of technology takers rather than technology makers, SMEs are middle ranked, despite facing high barriers to innovation.<sup>29</sup>

Non-technological innovation requires high levels of absorptive capacity in organisations (just as much as technology innovation) and the associated adoption of transformative management practices. These practices have been depicted as a set of “processes to integrate, reconfigure, gain and release resources to match and even create market change”.<sup>30</sup> There is now a significant body of research on the role of such practices and capabilities in creating value at both the enterprise and national levels and it is increasingly recognised that productivity is determined not only by tangible technologies such as machinery and new products, but also intangible technologies such as management techniques and new processes, whose encouragement by government policy is no less important.<sup>31</sup> For example, a major global study, *Management Matters*, found that: “Improving management practice is associated with large increases in productivity and output”, with a single point improvement in management practice (rated on a five point scale) associated with the same increase in output as a 25 per cent increase in the labour force or a 65 per cent increase in invested capital. The study



**FIGURE 4**  
**AUSTRALIAN MANAGEMENT PERFORMANCE GAPS**



Source: Green, R. Agarwal, R. Van Reenen, J. Bloom, N. Mathews, J. Boedker, C. Sampson, D. Gollan, P. Toner, P. Tan, H. Randhawa, K & Brown, P. (2009). *Management Matters in Australia: Just how productive are we?* Report for Department of Innovation, Industry, Science & Research, Canberra

concluded that, “Governments can play their part in encouraging the take-up of good management behaviour” and that “doing so may be the single most cost effective way of improving the performance of their economies”.<sup>32</sup>

When Australian managers were benchmarked against other countries in an extension of the *Manufacturing Matters* study, they were found to be lagging world best practice in all 18 dimensions analysed, especially people management and “instilling a talent mindset”, which might be seen as a proxy for innovation capability, see Figure 4. While they generally measured up in large international firms where the calibre of management practice was uniformly high across all countries, Australian managers lagged global best practice most in smaller companies and in subsidiaries with limited plant autonomy.<sup>33</sup> These findings reaffirm a series of studies going back to the 1995 Karpin Report, which was among the first to highlight the key role of management in innovation and firm performance. The report emphasised non-technical dimensions of management and the role of creativity, communication skills and change management. In its 28 recommendations, the report advocated a national approach to the development of an enterprising culture based on entrepreneurship, leadership development, enhanced diversity management, the implementation of a management competencies framework and various improvements to business and management education.

Subsequently, the Australian Business Foundation found that Australia continued to rank poorly in management capability, and that our managers were “good at solving tactical and operational problems in a creative way, but lacked the ability to sustain innovation in a strategic way”.<sup>34</sup> The Business Council of Australia and Society for Knowledge Economics argued that, “the emphasis of economic reform will need to evolve to a new stage – the leadership and management of Australian organisations, and the educational infrastructure and programs required to support the development of innovative capabilities within organisations”.<sup>35</sup> Further research found that high

performing workplaces “involve their people in decision making processes; are more responsive to customer and stakeholder needs; encourage a high degree of responsiveness to change and learning orientation, and enable their staff to fully use their skills and abilities at work”.<sup>36</sup> As a result, they are up to 12 per cent more productive and three times more profitable than their peers, and performed better in “intangible attributes” such innovation. The opportunities in this area are now sufficiently well understood for the *Australia in the Asian Century* white paper to maintain that, “Using creativity and design-based thinking to solve complex problems is a distinctive Australian strength that can help to meet the emerging challenges of this century”.<sup>37</sup>

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## Collaboration and smart specialisation

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Over the past decade there has been a major shift in the understanding of innovation from linear pathways for the transfer of knowledge to the market to a broader conception of how firms create and capture value within a complex network of interactions, which contribute to the development of national and regional innovation systems. This shift reflects the evolution of the innovation process itself, which is no longer a closed, protected process to black out competitors but a more open process recognising that the best people and ideas may lie outside the boundaries of the firm.<sup>38</sup> As the United Kingdom’s Lambert Review of business-university collaboration noted, the challenge is “not about how to increase the supply of commercial ideas from the universities into business. Instead, the question is about how to raise the overall level of demand by business for research from all sources”.<sup>39</sup> By 2004, Australian public policy also recognised “the complex nature of innovation and the importance of the people, linkages and interactions between the different system elements”,<sup>40</sup> but the effectiveness of our national innovation system, as discussed in the earlier CEDA report, has been “compromised by the lack of innovation policy focus and ‘joined-up thinking’ in government, public agencies, business and universities as much as by funding deficiencies”.<sup>41</sup>

Traditionally, Australian businesses of all sizes are poor collaborators by international standards, particularly when it comes to business-university collaboration and international linkages. Yet, the *Australian Innovation System Report* demonstrates that innovative businesses which collaborate (compared with innovative businesses which do not) achieve superior outcomes, with 23 per cent more likely to report increased productivity, 48 per cent more likely to increase the range of goods and services offered, and 34 per cent more likely to report increased profitability.<sup>42</sup> Around the world, according to a recent UK report, changing the collaborative environment is the key to a successful national innovation system and has far-reaching implications across firms and industry sectors, whether low or high tech, for corporate actors, competition policy, intellectual property regulation and skills.<sup>43</sup> For example, Finland has achieved world leading outcomes in education, research and technology and in the quality of its business environment through the promotion of deep engagement and collaboration. According to a recent Finnish Government report, innovation policy will increasingly focus on more collaborative, open and user-centred innovation, emphasising the development of products and services meeting the needs of customers and the strengthening of users’ and developers’ mutual development work, particularly in the area of user-oriented service innovations.<sup>44</sup>

There are many other examples internationally of structures and policies to promote collaboration. In 2011, Germany introduced a specific and targeted initiative called Research Campus with the purpose of funding complex technologies with potentially radical and disruptive impact. The initiative is designed to improve collaboration

between industry and academia, funding 10 highly focused proposals for long term co-operative research and engagement between universities, public research organisations and private companies. Similarly in the UK, the Dyson Report proposes ways for research to become more collaborative with a view to building UK's competitive advantage in global markets and supply chains, and emphasises the need to make it easier, simpler and more rewarding for academics, industry and non-profits to engage in collaborative projects. In this context, Dyson also notes the importance of formally encouraging cluster activity, based on local concentrations of companies and public institutions from a particular sector or group of sectors, often around access to shared expertise or facilities: "The co-location – and repeated exchanges between organisations – promotes both competition and co-operation, and promotes innovation and entrepreneurship".<sup>45</sup>

A further trend is for firms to move from open innovation to co-creation, increasing user involvement in production and redefining the boundaries between producers and consumers. While user led innovation is not new, the innovation platforms that provide users with the opportunity to develop and modify products and ideas are now more readily available and accessible. Such user led platforms have implications for how firms do business, from the ownership of intellectual property, to the sharing of firm information, to the managing and motivating of online communities.<sup>46</sup> A similar approach is being adopted for public sector innovation and service delivery. The Brookings Institution has argued that governments must also be more collaborative and user oriented in service innovations, requiring "governments that learn to innovate and collaborate, and develop new approaches to service delivery, transparency, and participation. This includes placing more data online and employing data analytical tools, social media, mobile technology, and search results that improve decision making".<sup>47</sup> Essentially, research programs are being redirected to solve specific challenges through new approaches to user led collaboration, with a strong emphasis on harnessing the digital economy to create long term growth and jobs.<sup>48</sup>

The announcement of a \$500 million Innovation Partnerships Program, on the recommendation of the Prime Minister's Manufacturing Taskforce, is a breakthrough for Australian public policy.<sup>49</sup> Following the pattern in other countries but adapting to the Australian context, these partnerships will combine elements of geographically concentrated clusters with broader industry led innovation networks in key areas of existing and potential competitive advantage for the economy, embedding and developing collaborative relationships within and across industry sectors. However, unlike other countries such as Sweden, Finland and most recently the US, the Australian program does not attempt to identify enabling technologies and capabilities for the future using a "technology foresight".<sup>50</sup> Instead, it opens up the program to competitive tendering by industry and research institutions, which has the advantage of allowing the government to repudiate any suggestion that it is picking winners, by enabling the winners to pick themselves, but the disadvantage of lacking a clear, comprehensively analysed and agreed focus for the allocation of public resources.

The recognition that Australia must diversify its sources of growth raises the question of what those sources of growth are and how they will be determined. It has recently been argued that, "for Australia to advance its knowledge innovation economy, there is a need to focus limited resources on doing a few things well rather than trying to do everything".<sup>51</sup> The Innovation Partnerships will require informed analysis of future enabling technologies and capabilities, some of which may be generated in Australia, others the result of diffusion and adaptation. For a country with only two per cent of the world's R&D, it would be counter-productive to attempt to be a first mover in too broad a range of technologies, and far preferable to be an agile and effective fast follower, where quite often there are greater opportunities for value creation. A recent

McKinsey Global Institute report identified 12 future disruptive technologies with significant potential impact, scope and reach on industries, economies and how people work and live, including mobile internet, cloud technology, advanced robotics, autonomous and near autonomous vehicles, next generation genomics, energy storage, 3D printing, advanced materials and renewable energy.<sup>52</sup> The CSIRO has undertaken a similar exercise in the Australian context, and internationally this approach guides innovation policy and strategic priorities for areas of both current and future competitive advantage.<sup>53</sup>

For example, the US Advanced Manufacturing Partnership recently announced the first three of many ‘Advanced Manufacturing Innovation Institutes’ to develop areas of competitive advantage in digital manufacturing technology, lightweight composites and new alternative-power sources.<sup>54</sup> Each institute would serve as a regional hub to bridge the gap between basic research and product development, bringing together companies, universities and community colleges, and Federal agencies to co-invest in technology areas that encourage investment and locally based production. Similarly, in Europe, the ‘smart specialisation’ strategy enables identification of areas of regional and global competitive strength for European Structural Fund investments in research and innovation, and more broadly for the Europe 2020 jobs and growth agenda:

“Smart specialisation understands that spreading investment too thinly across several frontier technology fields risks limiting the impact in any one area. A smart specialisation strategy needs to be built on a sound analysis of regional assets and technology. It should also include an analysis of potential partners in other regions and avoid unnecessary duplication. Smart specialisation needs to be based on a strong partnership between businesses, public entities and knowledge institutions – such partnerships are recognised as essential for success.”<sup>55</sup>

Germany’s innovation system, with its “thick layer of internationally competitive firms”, particularly in manufacturing, has clear policy priorities targeting specific areas of growth.<sup>56</sup> The *High-Tech Strategy 2020* has identified five societal and global challenges – climate, nutrition/health, mobility/transport, security and communication – and aims to create “forward looking projects” over the next 10 to 15 years that will lead the market. An important part of this strategy is demand-side innovation policies that include not only targeted public procurement but also policies that “strongly focus on early interaction between potential users of new technology and those actors that develop technology; interactions should facilitate mutual learning and help to introduce technologies that meet the requirements of future markets”.<sup>57</sup> Among the Nordic countries, Sweden’s 2009–12 science, technology and innovation policy identified 24 strategic areas for targeted funding allocations under four broad themes, whereas Finland has developed a focus on key emerging and environmental technologies. Norway’s White Paper on research 2009–13 defined policy goals around “creative people and creative undertakings”, with an *Action Plan for Entrepreneurship in Education* aimed at strengthening students’ personal skills, perspectives, creativity and innovative thinking.

In sum, Australia needs to identify high value adding activities, particularly those with the prospect of developing critical mass in clusters and networks, and which offer the best chance of strengthening competitiveness and future growth opportunities in global markets. Increasingly, businesses are using models of co-creation and co-innovation, which reflects an understanding that firms may be able to create and capture value by engaging in relational approaches with value created in action. These models of open, collaborative innovation may be outside in, where a firm makes greater use of external ideas and technologies in its own business, or inside out where a firm allows some of its own ideas, technologies or processes to be used by others.<sup>58</sup> For example,

in competitive co-creation, a company may seek to innovate products and services through input from stakeholders, including through crowdsourcing, with models ranging from large established companies such as General Electric's Ecomagination to independent initiatives such as OpenIDEO.<sup>59</sup> Another model is community-based competition, where the value in action may occur in exchange between customers facilitated through an online open platform, with a co-created service that produces a new product.<sup>60</sup> Beyond these models is co-innovation which is both open in the process of the creation of the service and open in the outcome<sup>61</sup>, illustrated by the Linux operating system and Wikipedia.<sup>62</sup> Can public policy encompass these new forms of innovation, and, if so, in which areas can they most effectively be deployed?

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## Building future innovation capabilities

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In the wake of the resources boom, Australia's future as a high-cost economy depends more than ever on the successful deployment of knowledge and innovation. Our productivity performance has begun to improve from a low base in recent years, but much more needs to be done to achieve competitive advantage for trade exposed industries and services in global markets and supply chains. It is clear from the experience of comparable economies that this will not be achieved through the low road approach of narrow cost cutting and an unwinnable race to the bottom, but only through a high road of longer term dynamic efficiency gains in a knowledge based economy. We have argued that such an approach will require the development of enhanced management and innovation capability at the level of the firm, strategic repositioning of industry sectors around key enabling technologies and skills through smart specialisation, recognition of broader non-technological forms of innovation such as new business models and design thinking, support for deep collaboration and engagement throughout the national innovation system and a more effective and targeted approach to participation in global value chains.

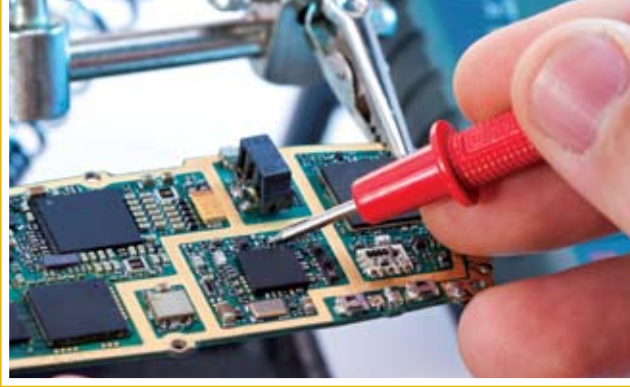
Clearly progress has been made with a more deliberative understanding of Australia's national innovation system, improved but still not adequate levels of funding for the various elements of the system and a shift of policy emphasis from supply side concerns such as public research, business R&D and skill development, important though these are, to the demand side of innovation, particularly enterprise absorptive capacity, management capability, public procurement and technology diffusion. This shift is encapsulated in the new Innovation Partnerships Program, essentially industry led networks, which enable business and research institutions to determine for themselves within a broad funding framework how these elements may be combined most effectively in ecosystems of established or emerging global competitive advantage. The priority for the new Coalition Government should be to inform this program with a technology foresight as well as deepening collaboration within these ecosystems and value chains, especially the fast growing group of micro-multinationals in Australia, and broadening it to include integrative and design thinking around new business models and the customer experience. However, a major challenge for the Innovation Partnerships, as for the Australian economy as a whole, remains to develop workplaces where managers are able to engage the talent and creativity of their workforces and entrepreneurial start-ups which create long term growth and jobs.

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## 3.2

# The innovation ecosystem

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## Introduction

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Australia must learn to foster innovative hubs within ecosystems of innovation if it is to maintain the level of prosperity that it has historically enjoyed in an increasingly competitive world. The forces that have driven the creation of a global supply chain are also necessitating increased competition based on constant innovation and improvement. They are also driving a consolidation of value added activity into critical hubs of activity. Understanding what is driving the creation of these innovative hubs is critical to developing an innovation ecosystem that will help Australia's economic prosperity in the future.

This paper examines the forces driving innovation consolidation, what it takes to prosper for innovation to prosper in hubs, and how Australia compares with leading countries. It also points out the risks involved with failing to develop an innovative culture and makes recommendations to improve the nation's performance in key areas where it is well below international best practice.

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## Why we are where we are

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The technological and policy changes driving increasing globalisation have created challenges as well as opportunities. Producers initially exploited reduced barriers to trade by attempting to generate economies of scale, of learning and earning benefits by leveraging different price levels in different markets. A large part of this activity involved cost arbitraging production by outsourcing activities to low-cost regions.

The initial offshoring period was followed by the disintermediation of the firm-internal value chain into unit operations that enabled by rapid information and communications technology (ICT) development, could be dispersed both geographically and organisationally and still be managed effectively and efficiently. This has resulted in fragmentation of value chains, both inside and outside the firm.

In today's world, firms operate in these fragmented value chains where the unit operations are separated in terms of activity, localisation and ownership. These strategies result in an increased number of unit operations to create the goods and hence many more interactions across the value chain and a substantial increase in the move of intermediary goods.

Research has identified that intermediate inputs represented 56 per cent of goods trade and 73 per cent of services trade in the period 1995–2005 and with an average annual growth rate of 6.2 per cent for goods and seven per cent for services in volume terms.<sup>1</sup> From this it follows that the ratio of global imports and exports per unit of output has increased which is confirmed by research that found a 10-fold increase of world imports of intermediate goods in the last four decades (constant price data).<sup>2</sup> As goods or services become commoditised, their production is shifted to lower cost destinations.

What is becoming better appreciated is that firms that outsource or offshore to geographically distant locations run an increasing risk of failing to capture the innovation opportunities involved in the production process. There is a clear cost disadvantage in separating the product development from its various stages of realisation (for example manufacturing). In sum, there is evidence that many companies have overestimated the advantages of outsourcing and offshoring while underestimating its problems. In many industries, such as automotive, electronics and software, it has been observed

### Box 1

#### The need for accelerated learning

The response to ongoing commoditisation in high-cost environments is to develop new knowledge faster than the dissemination can occur and to do this in domains where barriers to entry and temporary competitive advantage can be easily maintained such as in activities with a high dependence on intellectual capital. This is leading to a combination of:

- A general shift towards knowledge-based services linked to the physical goods produced;
- Vertical specialisation, which allows firms to take advantage of cost savings or productivity enhancements gained from externally supplied components (outsourcing) or from abroad (offshoring) and from externally supplied production equipment and processes (leveraging innovation in equipment and process suppliers) given the existence of appropriate absorptive capacity in the firm; and
- A high focus on developing and appropriating new knowledge in relevant domains underpinning the firm's activities (for example through research and development (R&D), design development and consumer behavioural insight).

that when outsourcing or offshoring, companies increasingly run the risk of ceding and, sometimes, even destroying those capabilities and processes that have constituted their competitive advantages.

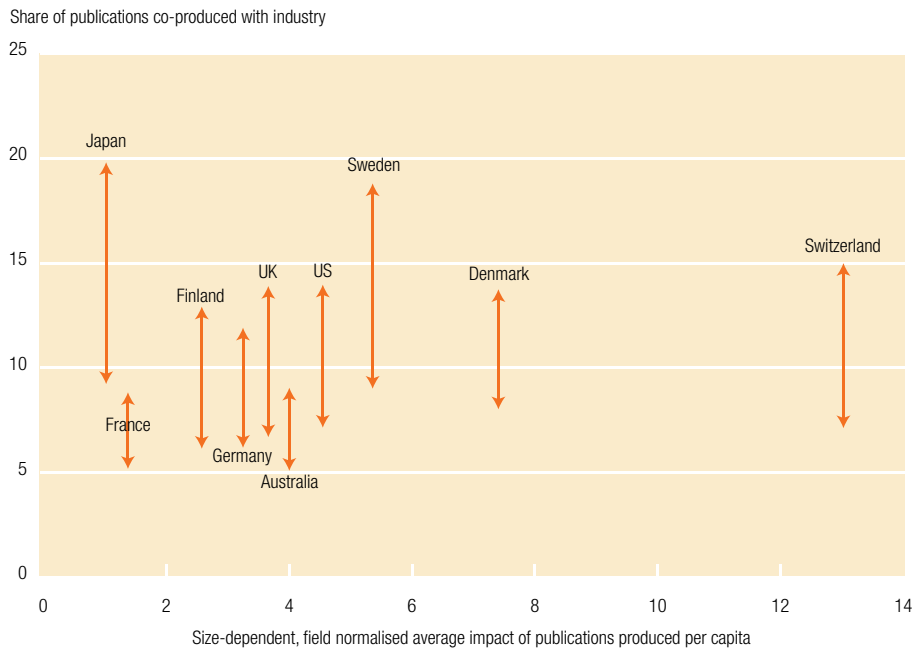
Depending on the structure of production and trade within a given industry there is a varying but increasing tendency by lead firms to prefer larger, more capable globally operating, first-tier suppliers.<sup>3</sup> This consolidation impacts both on the firm and country level. An additional driver of this consolidation is the desire to co-locate with lead customers and key knowledge providers, and the desire to benefit from being part of clusters (typical benefits are 14 percentage points higher value added growth, seven percentage points higher profitability growth and two percentage points higher wages per employee (a proxy for productivity)).<sup>4</sup>

The international competitiveness of a location is therefore increasingly important for employment and prosperity, determining the ability to provide attractive work and income for its inhabitants. Companies at a given location have to position their business activities more consistently on world markets and in transnational value chains.<sup>5</sup>

In the case of a highly developed economy such as Australia, boasting a high income level, international firm competitiveness cannot be sustainably created by cost competition. It is far more likely to be accomplished through competition in terms of quality and innovation. Firms in a high-cost location have to be able to offer products and services to international clientele interested in innovative and unique products with a performance advantage for which the buyer is willing to pay a premium price. This presupposes a high capacity for innovation, encompassing the implementation of each new, useful idea from its inception to successful application in the market. It also requires an ability to generate innovations quicker and better than competitors, and to maximise its potential in international markets.

Not just companies but countries compete in this global marketplace. Policy has a pivotal role in enabling success in this highly competitive landscape. Most of these competing locations are striving to improve their capacity for innovation. One approach adopted by the most successfully innovative countries is that adopted by Germany, Sweden and Finland where the government serves as a facilitator of networks in which actors develop technology that meets market requirements.<sup>6</sup> In this model, the state

**FIGURE 1**  
**SHARE AND IMPACT OF RESEARCH THAT IS DONE JOINTLY BETWEEN UNIVERSITIES AND INDUSTRY**



Source: Roos, G. and S. Pike, "The Relationship between University Research and Firm Innovation", Chapter 3 in Evans, E., Burritt, R. And Guthrie, J. (eds.), Bridging the Gap between Academic Accounting Research and Professional Practice, The Institute of Chartered Accountants in Australia & Centre for Accounting, Governance and Sustainability at University of South Australia, 2011, pp. 31–50.

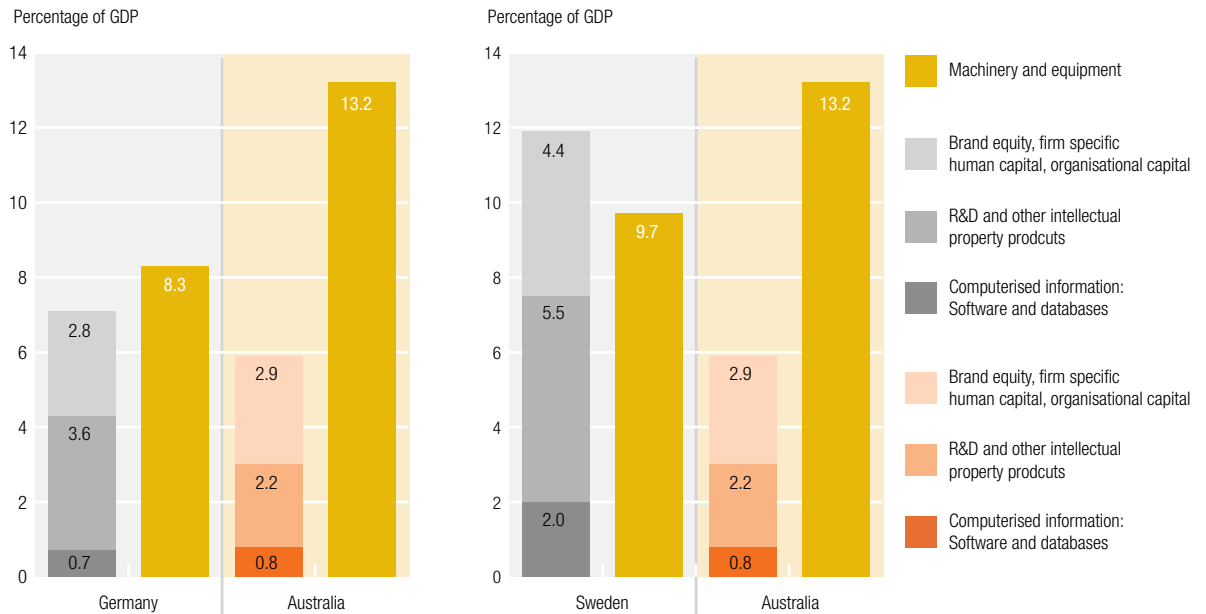
steers clear of the thematic fine tuning of technology by means of direct project promotion, although without entirely relinquishing its task as a driving force and co-financier of innovation processes. An example of this third paradigm are contests organised by the German Federal Government (for example, Bio-Regio, Inno-Regio, Mobility in Agglomerations, Initiative for Excellence, and Spitzencluster Competition), in which locations compete for funds to assist in developing innovative industries. The aim of these programs is to link those from business, science and politics within a region to collaborate on innovative solutions by drawing on local strengths.

In a well functioning high-cost operating environment there are some key aspects of the innovation system that needs to be in place and work well. These include high performing centres of basic as well as applied research with strong, bi-directional linkages to industry.

Figure 1 indicates that there is a difference between the share and impact of research that is done jointly between universities and industry in Australia and other high-cost operating environment countries like Germany, Sweden and Switzerland. It is clear that Australia underperforms in this critical source of innovative capacity.

Productivity premiums from basic research can only be realised by high-tech industries whereas productivity premiums from applied research can be realised by both medium-tech industries and high-tech industries.<sup>7</sup> In order to maximise local employment opportunities through medium-tech industrial activities the focus needs to be on applied research in close co-operation between research institutions and industry. This is an area where Australia is weak due both to low absorptive capacity on the firm side and misaligned incentives for researchers on the research side. In the latest Leiden Ranking on University Industry Collaboration, Sweden hold two of the top five places whereas the first Australian university holds place 247 preceded by five Swiss, seven Swedish and 35 German universities.<sup>8</sup>

**FIGURE 2**  
**INVESTMENT IN PHYSICAL CAPITAL AND INTANGIBLES AS A PROPORTION OF GROSS DOMESTIC PRODUCT, 2006**



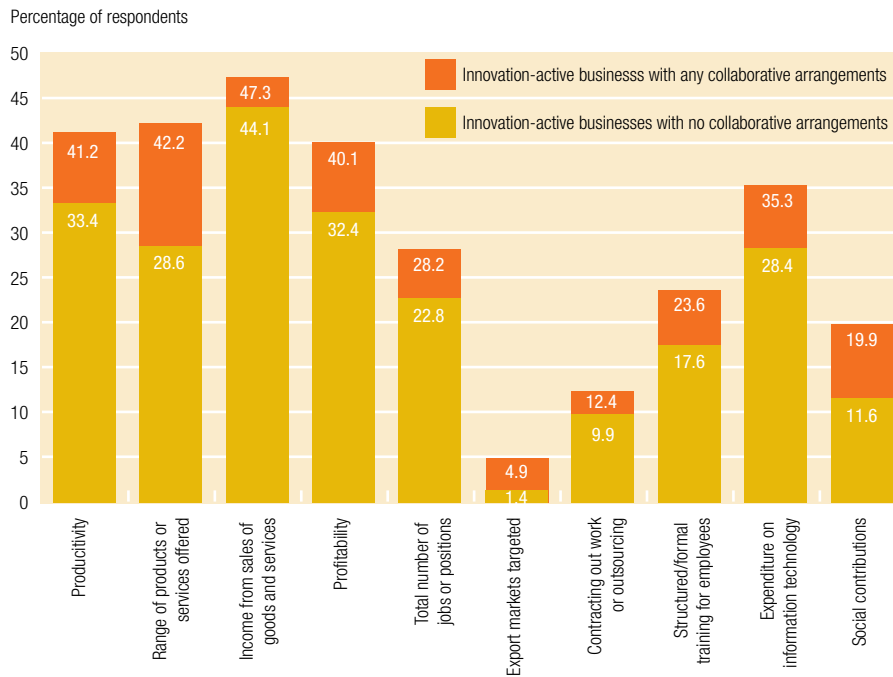
Source: OECD (2010) Measuring Innovation: A New Perspective, OECD, Paris.

In Australia, the propensity to introduce a new-to-the-market product innovation is similar whether a business undertakes R&D or not.<sup>9</sup> The expenditure on R&D is highly concentrated in large Australian businesses, which accounts for only 42 per cent of Australia's output (in terms of gross value added), and in sectors such as mining, manufacturing and financial and insurance services.<sup>10</sup> The total number of companies registered for the R&D Tax Concession in 2010–11 was 9118<sup>11</sup>, a small fraction of the 764,000 innovative businesses in Australia.<sup>12</sup> A comparison between investment in tangibles and intangibles between Germany and Australia is shown in the figure above as is the even more extreme difference between Sweden and Australia.<sup>13</sup>

German companies frequently employ differentiation strategies, therefore offering products to a segmented customer base but reaping higher profit margins because of the perceived uniqueness of their products. They also tend to focus on quality leadership, focusing on constant but gradual innovation.<sup>14</sup> This strategy and behaviour is also clearly observable in Sweden and Switzerland. In Australia, a higher proportion of firms either do not innovate or are focused on innovation aligned with a cost leadership strategy.

Differences in the types of innovation reflect differences in strategy, with Australia being similar to other OECD countries in its innovation strategy mix. Technological innovation and organisational or managerial innovation tend to occur together in Australia, which is consistent with research showing that organisational/business model innovation is a fundamental complementary investment for most technology innovations. Proportionally, in most countries, SMEs focus more on marketing and organisational innovations rather than product and process innovations.<sup>15</sup> This may explain why, in Australia, with a high proportion of SMEs, 37 per cent of innovative Australian businesses spent no money on innovation in 2010–11 and an additional 48 per cent spent less than \$50,000.<sup>16</sup>

**FIGURE 3**  
**INCREASES IN BUSINESS PERFORMANCE AND ACTIVITIES OF INNOVATION-ACTIVE**  
**BUSINESSES COMPARED TO PREVIOUS YEAR, BY COLLABORATION STATUS, 2009–10**



Source: ABS. (2012c). Data analysis commissioned by DIISRTE from the Business Characteristics Survey, 2009–10.

Innovative firms that collaborate perform better than innovative firms that do not, as can be seen in Figure 3.

Australian innovative businesses are from an international perspective not collaborating enough since Australia is ranked 23 out of 26 OECD countries in terms of the proportion of businesses collaborating on innovation, an indication that Australian businesses are poor collaborators by OECD standards.<sup>17</sup> Global Competitiveness Report indicators of the extent of networking, such as the ‘state of cluster development’ and “value chain breadth” show that Australia is considerably behind other OECD countries, ranking 21 and 34 respectively, among the 34 OECD countries.<sup>18</sup> Like all innovation systems, the Australian innovation system is not homogenous, every business and every sector has a unique history and complement of diverse motivations, resources, creativity and timing issues. So a meso-level view is necessary when analysing this aspect of the innovation system.

The participants in a modern innovation system interact both co-operatively and competitively to co-evolve resources. In ICT dependent technology areas, these activities are centred on an existing or evolving platform. In other words innovation systems can be simultaneously viewed as a structure anchored around an objective or a platform; as a context conducive to open innovation; as an innovation community with both organisations and individuals as members; and as an innovation focused network of interlinkages and relationships between participants. The differences in modern innovation systems are driven by technological development and for most discussions will be the consequence of the development and deployment of ICT-based technologies (for example internet, web 2.0, social media and mobility) that have made geographical location less relevant at the same time as it is possible to interact with anybody anywhere. This development is also impacting the boundaries between services and physical goods in many ways.

**TABLE 1**  
**AREAS WHERE AUSTRALIA IS FAR BEHIND THE LEADING MANAGEMENT PRACTICE COUNTRIES**

Category	Australia's rank (1st quartile means best and 4th quartile means worst)
Business Competitive Index	3rd
Capacity for innovation	4th
Sophistication of company operations and strategy	3rd
Production process sophistication	3rd
Willingness to delegate authority	2nd
<b>Instilling a talent mindset</b> <i>Best practice:</i> Senior managers are evaluated and held accountable on the strength of the talent pool they actively build; <i>Worst practice:</i> Senior management does not communicate that attracting, retaining and developing talent is a top priority.	4th
<b>Rewarding top performance</b> <i>Best practice:</i> The firm provides ambitious stretch targets with clear performance-related accountability and rewards; <i>Worst practice:</i> People within the firm are rewarded equally, irrespective of performance level	2nd
<b>Addressing poor performance</b> <i>Best practice:</i> Poor performers are moved to less critical roles or out of the company as soon as weaknesses are identified; <i>Worst practice:</i> Poor performers are rarely removed from their positions.	3rd
<b>Promoting high performers</b> <i>Best practice:</i> Top performers are actively identified, developed, and promoted; <i>Worst practice:</i> People are promoted primarily upon the basis of tenure.	3rd
<b>Attracting high performers</b> <i>Best practice:</i> The firm provides a unique value proposition to encourage talented people to join the company instead of the competitors; <i>Worst practice:</i> Competitors offer stronger reasons for talented people to join their companies.	3rd
<b>Retaining high performers</b> <i>Best practice:</i> Managers do whatever it takes to retain top talent; <i>Worst practice:</i> Managers do little to try and keep top talent.	2nd

Source: Rows 1-5 are sourced from Porter, ME & Schwab, K 2008, *The global competitiveness report 2008–2009*, World Economic Forum, viewed 25 October 2010, <http://www.weforum.org/pdf/GCR08/GCR08.pdf> and scaled by the author.

Rows 6-11 are sourced from Green, R, Agarwal, R, Van Reenen, J, Bloom, N, Mathews, J, Boedker, C, Sampson, D, Gollan, P, Toner, P, Tan, H, Randhawa, K & Brown, P 2009, *Management matters in Australia – just how productive are we? Findings from the Australian Management Practices and Productivity global benchmarking project: report for the Department of Innovation, Industry, Science and Research (DIISR)* and scaled by the author.

Agglomerations like clusters continue to be the main sources of innovation but their form is changing with a decreasing emphasis on, and need for, geographical concentration as well as in increasing geographical reach due to these new technologies and the accompanying new ways of working. As a consequence the importance for organisations to be close to the centre of activity in these clusters as well as for regions and nations to host these centres will increase in order to appropriate the value created through these more diffuse and dispersed agglomerations that drive innovations. In addition, this development increases the importance of a modified law of requisite variety. The less geographically dense and the higher the number of participants in a given innovation system, the more important it is to be part of random innovation



systems since the risk of ‘missing out’ within a given ecosystem increases. Also once the innovation system has converted to also being a production system the supply chain risks need to be offset by, again, being part of several ecosystems with different supply chains. This requires extensive knowledge of where the different components can be located; for example, most will be aware of the ICT competence residing in Silicon Valley and Bangalore but how many are aware of the high level of competence that resides in Tomsk or Novosibirsk in Russian Siberia. Likewise many will be aware of the production opportunities for concentrated solar power in for example Spain and the USA but how many are aware of the opportunities present in the Kingdom of Saudi Arabia? In conclusion the temptation to partner solely with the most obvious and the presently most successful needs to be balanced with reviewing opportunities for diversifying into a larger number of ecosystems that present interesting opportunities in addition to reducing risk.

There has been increasing concern about the quality of management in Australian businesses. A major international study of 9000 businesses (including Australia) collected data about business management. It found that management practices in Australia were mid-range among 20 countries and well below top performing countries such as the USA, Germany and Sweden<sup>19</sup>, indicating a considerable gap in management practices between multinational businesses operating in Australia and local family owned businesses.<sup>20</sup> With only 18 per cent of Australian businesses being strategic innovators compared to 44 per cent for the global leaders, Australia appears to be lagging in this aspect of business practice.<sup>21</sup> Specific areas where Australia lags behind in management practices are outlined in Table 1.

Improving management performance is a key factor in longer term sustainable growth for Australia. Further, the Australian Management Practices study also concluded “while...some of our firms are as good as any in the world, we still have a substantial tail of firms that are mediocre, especially in their approach to people management”.<sup>22</sup> Australia needs to focus on its management practices across all dimensions, but in the people management space, Australia lags far behind the best performing nation, especially in ‘instilling a talent mindset’ and ‘addressing poor performers’. The management performance of Australia is probably partially linked to the educational attainment of managers and employees in firms. In Australia 44 per cent of managers have degree level education compared to 66 per cent in Germany, and the numbers for non-managers are eight per cent and 11 per cent respectively.<sup>23</sup>

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## Risks

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Australia is more exposed to international competition than countries with a better functioning innovation system that includes larger shares of global supply chains present inside the country and a larger share of medium sized firms operating in the country. This weakness is also visible in the many low value adding export products originating in Australia and entering high value adding value chains in other countries such as minerals, gas, coal, wheat and other primary industry goods.

Globalisation and new technological possibilities attract new competitors and increase (international) competitive pressures, especially for SMEs. The more trade exposed firms are, the higher the pressure on them to innovate in order to survive. With this positive pressure to evolve also comes a higher risk of rapidly falling behind international competition or even failing. To sustain economic success, the economy has to remain flexible and agile and display an above average ability to quickly respond to and assimilate related conflicts. The ability to succeed in this environment is the key

to economic success and the temptation to insulate firms from these global pressures will result in uncompetitive firms and consequently national economic decline.

In Australia's transition from a low-cost operating environment to a high-cost operating environment firms that do not make the transition from the basis for success in the old environment to the different basis for success in the new environment will likely fail. This will generate a conflict between short term political pressures to intervene in order to 'save jobs' and long term incentives to support a transition to a more competitive economy. Both require investments but the former comprises normally investments with negative returns (unless you buy time to change) whereas the second comprises investments with positive returns.

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### Why worry

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The importance of manufacturing to the economic prosperity of a nation has started to be more widely understood. Australian manufacturers must develop leadership in higher value-add products and move away from commodities and low-end assemblies (the principle should be to aim for medium to high complexity, low volume, high variability and high value adding). This will require a culture shift but is fundamental to Australia's ability to retain enough value to provide the social good expected by its citizens and institutions (for example healthcare, infrastructure, education, pensions). This theme must permeate all other policy decisions affecting directly or indirectly the industry policy sphere.

Hausmann and Hidalgo have studied the relationship between manufacturing, specifically advanced manufacturing, knowledge and capabilities and economic prosperity for different jurisdictions.<sup>24</sup> Their 60 year longitudinal study of export trade data shows that the building of manufacturing knowledge and capabilities resulting in the trading of manufactured goods provides the basis for increased prosperity. They show that developing and appropriating more knowledge and converting this to the production of goods and services and hence developing more complex products, and processes relating to manufacturing lead to greater economic prosperity for a country and its citizens. Finally, their research argues that the link between the knowledge networks and capabilities necessary to drive advanced manufacturing and the economic prosperity of a nation is a better predictor of the variation in incomes across countries than any other leading indices. More simply put, manufacturing matters: advanced manufacturing is a key driver of high-value job creation and economic prosperity on the national level and as these advanced manufacturing domains mature they become medium manufacturing domains with supply chains that permeate the local economy, and provides large numbers of well paid and stimulating local jobs with a high multiplier effect into the rest of the economy.

It is clear that there is a desperate need for an effective industry policy in Australia that supports innovators but does not try to create them.

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## Policy recommendations

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Moavenzadeh et al. interviewed 70 executives from around the world in the period August 2012 through to early January 2013 about key policy issues relating to a variety of policy issues.<sup>25</sup> The key findings are outlined in the tables in Appendix A. Below are outlined some of the most important and most challenging recommendations with the supporting arguments deduced from the discussion above:

- Change the criteria for academic success to also include industry relevant activities. Universities are the primary source of highly educated people and a major source of new ideas. In Australia the grounds for success in academic careers have to be widened to take into account more than a narrow evaluation of academic publications. These career criteria should also cover problem solving for economic agents (firms, not-for-profits and public sector organisations) for example contract research and consulting, commercialisation for example patenting and firm start-up participation, and tutoring of students and researchers on industry related projects. There is no contradiction between these elements and research excellence since any activity can generate as a main or secondary outcome a high quality research publication. Addressing these issues will automatically address the cultural barriers presently existing in the system. On the commercialisation side, in addition to what is already stated, support for entrepreneurship among final year science, technology, engineering and math (STEM) undergraduate students and first year STEM PhD students should be further encouraged (see the entrepreneurship program launched in South Australia).
- Lower the corporate tax rate to internationally competitive levels (for example Sweden's is presently at 22 per cent).
- Lower compliance costs by eliminating overlapping policies where multiple agencies have jurisdiction in order to free up resources for innovation inside the firm.
- Ensure the country has a world class education and training system.
- Piggyback on the European Union and United States Key Enabling Technologies programs with a focus on areas where the Australian industry structure can benefit from the outcomes.
- Extend the remit of the manufacturing leaders group to include the articulation of innovation goals with a 15 to 20 year development horizon. Then collaboratively and in a bipartisan manner support those goals with policies, investments, infrastructure, education and other related programs.

## Appendix A

Theme	Detail	Common concern
Consistency, stability and certainty	A consistent and stable policy environment, freed from election cycles, providing longer term certainty for business investment decisions. As capital investment and workforce hiring decisions have long term consequences – often 10- to 20-year or more time horizons – establishing policy stability over longer time periods facilitates the setting of business and investment strategies with greater confidence and enhances the ability to commit to stakeholders.	Uncertainty was the number one concern mentioned by executives regarding public policy. Many executives said the level of uncertainty regarding the direction of key public policy decisions has reached epic proportions.
Globally competitive, fair and enforced	Establishing policies that are globally competitive with other nations and which do not create competitive disadvantages for businesses ('do no harm'). Further, policies should strive to help level the playing field and be rigorously enforced for all global competitors. Policymakers have a critical role to play regarding the establishment of fair and competitive global markets. Strong enforcement is essential particularly in the areas of intellectual property protection, currency manipulation and trade violations.	Policies that result in a competitive disadvantage with other nations impacting an industry sector or the broader business community, e.g. higher tax rates; limited or poor infrastructure investments; unique and burdensome labour or environmental standards.
Developed through dialogue and collaboration	The development of policies based on meaningful dialogue and collaboration between business leaders and policymakers contributing to more informed and thoughtful policy development, limiting unintended negative consequences.	Policies that significantly impact businesses but are established without the benefit of a dialogue and exchange of ideas with business leaders, resulting in either costly or otherwise competitively disadvantageous policy environments, often with unforeseen or unintended consequences.
Creates institutional legitimacy, credibility and market confidence	Policy that creates institutional legitimacy – in the court systems, the financial systems and markets, for intellectual property protection, for asset protection, for enforcement, and for fair and consistent consequences of infractions and violations – is essential for advanced economic markets to thrive and grow and to attract investment of capital and talent. Corruption should find no home in free markets.	Environments that do not instil confidence for investors regarding government institutions – impacting the banking system, the court system, or legislative or regulatory processes.
Harmony and alignment	Policymakers should strive to reduce the fragmentation and complexity of today's policy environment through the synchronisation and harmonisation of national, state, and/or local policies and across agencies and branches of government.	Government actions that are uncoordinated across responsible agencies or departments and that inadvertently undercut and work against one another. Also unnecessary complexity that adds greatly to the cost of compliance further inhibits business investment and reduces competitiveness.
Financially prudent; balance costs versus benefits	Individual policies and the overall policy bundle must be financially affordable and reasonable for business and society. The costs associated with policies – even those that may be well intentioned and arguably necessary – should not outweigh the benefits.	A burdensome high-cost policy or policy environment where the costs to implement and pay for the policy objective outweigh the benefits to society. Additionally, concern was expressed for policies that create a long term fiscal burden (deficit) that becomes a drag on business investment and competitiveness.

Table 2: Key policy themes extracted from interviews with 70 international executives regarding effective public policy.<sup>25</sup>

## Appendix A... cont

Common policy recommendations essential to growth	Detail
Competitive tax policy applied within simplified tax systems	<p>Executives participating in our discussions, regardless of where in the world their companies were located or maintained operations, consistently expressed concern with both business tax policy and complex national tax systems that negatively impact competitiveness. While specific country tax systems varied country-to-country, executives broadly felt that those countries that could offer competitive advantages in lowering an organisation's overall effective tax rate, as well as remove resource and cost burdens often associated with compliance, would be the winners. Eliminating double-taxation or redundant taxes and creating tax incentives for innovation, research and development, workforce development and other capital investments were viewed as important levers and when effectively applied, could significantly improve a country's competitive advantage.</p>
Policy that promotes and protects free and fair trade	<p>Trade was frequently and passionately mentioned by almost all of the executives participating in our discussions. Participants consistently called for policy-makers to increase both the number of free trade agreements and the pace at which new agreements are formed and ratified. While most executives preferred an effective global WTO solution and noted the important objectives of the Doha rounds, many were sceptical that would be accomplished. Executives were equally passionate about trade agreements being fair along multiple dimensions and considerate of broader elements than are normally included, addressing labour practices and working conditions for example. Finally, the subject of trade agreement enforcement was also a common theme. Executives felt effective trade policy must address enforcement of existing agreements. Ensuring a fair and level playing field was equally as important, if not more important, than the number of and speed with which new agreements are forged.</p>
Energy policy promoting efficiency, security, strong infrastructure, and low cost	<p>Energy policy was consistently mentioned in our discussions with manufacturing executives around the world – both from a cost perspective and from an energy security, stability of supply perspective. Executives broadly felt that countries that could provide clean and sustainable sources of energy at a competitive cost would offer a significant advantage over other nations. They also felt it was incumbent on policy-makers to develop comprehensive national energy policies that effectively and responsibly build a portfolio of strategic sources of energy, ensured efficient delivery through world class infrastructure, and supported appropriate R&amp;D efforts into alternative sources of clean energy. Given rapid growth globally in the demand for energy, rigorous efficiency standards, research in alternative sources of energy, and appropriate and responsible development of current sources of energy were all very important to manufacturing executives. Often, executives further suggested that effective energy policy should also drive opportunities for innovation and economic development. Finally, executives generally supported efforts by policy-makers to establish a price on carbon emissions and to develop effective mechanisms to engage all nations around the world on a reasonable march toward clean energy sources.</p>

## Appendix A... cont

Common policy recommendations essential to growth	Detail
Education and workforce policy which develop superior talent	The ability to develop and attract the world's most talented workers was critical to every executive participating in our discussions regardless of where in the world they resided. Executives consistently felt that their ability to drive innovation was directly linked to their ability to access highly educated workers. And while STEM (science, technology, engineering and mathematics) literacy was important, it is interesting to note that executives consistently felt STEM is not, by itself, sufficient. Many commented that creativity and imagination are key ingredients to producing great innovation. As a result, they stressed manufacturers need STEM educated, multidisciplinary thinkers that are also creative and can problem solve in a team environment. Executives consistently felt that public policy must ensure high quality education for students at all levels and support effective industry-led workforce training and development.
Science, technology and innovation policy which promote advanced manufacturing	Finally, executives felt a highly educated workforce with strong STEM and creativity skills combined with policies that consistently promote superior science and technology research and development through to commercialisation - including the development of advanced manufacturing processes - were essential to national competitiveness. Policies which support long term funding for research institutions and public-private research partnerships as well as promote the strong connectivity between research institutions and manufacturing enterprises were considered key ingredients to the development of powerful "manufacturing-innovation ecosystems", enhancing overall workforce productivity and competitiveness and driving prosperity for the citizens of a nation.
Financially prudent; balance costs versus benefits	Individual policies and the overall policy bundle must be financially affordable and reasonable for business and society. The costs associated with policies – even those that may be well intentioned and arguably necessary – should not outweigh the benefits.

Table 3: Key policy themes extracted from interviews with 70 international executives regarding effective public policy for growth.<sup>26</sup>

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## 3.3

# Policy innovation for innovation: Income-contingent loans

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Professor Withers has also held major positions in government including as Head of the Economic Planning Advisory Commission reporting to the Prime Minister and as Chair of the National Population Council. He has chaired national public inquiries into population, infrastructure and immigration and was Chair of the Migrant Skills and Qualifications Board.

Professor Withers has also been adviser to major Australian businesses and business groups, such as the Business Council of Australia, to international bodies such as the OECD and World Bank and to overseas governments. He is a Harvard graduate, has taught on the Faculties of Harvard and Cambridge, and was made an Officer in the Order of Australia for development of the Australian immigration points system.



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Nitin's doctoral research focused on India's post-reforms industrial performance. Prior to coming to Australia, he worked for several years in the private and public sectors in India, US, and New Zealand, including for Marsh and McLennan Companies New York and International Market Assessment New Delhi.

## Introduction

The issue of innovation is a crucial one for Australia. The country currently ranks less well on innovation than it should as a mature advanced economy as outlined in Table 1. Moreover its standing has been steadily slipping.<sup>1</sup> Yet there is a clear and present need to boost productivity to sustain national progress.<sup>2</sup>

**TABLE 1**  
**INSEAD GLOBAL INNOVATION INDEX 2012**

	Australia		Country ranking No 1	
	Score (0–100)	Rank	Country	Score (0–100)
Global Innovation Index	51.9	23	Switzerland	68.2
Innovation Input Sub Index	63.4	13	Singapore	74.9
Innovations Output Sub Index	40.4	31	Switzerland	68.5
Innovation Efficiency Index	0.64	107	China	1.13

Source: INSEAD (2012), *Global innovation Index 2012*, Paris: INSEAD

Micro-economic reforms undertaken in the 1980s and the 1990s and the resources boom of the last decade have delivered over two decades of uninterrupted economic growth, the longest in Australia's modern history. However, the period of resources-led growth in particular has belied a worrying decline in national productivity growth. There is now widespread agreement that Australia must proactively seek to arrest this productivity growth decline to ensure sustainable growth post the minerals boom, and that innovation has a key role to play here.

The OECD defines innovation appropriately as follows:

Innovation is the implementation of a new or significantly improved product (good or service), process, new marketing method or a new organisational method in business practices, workplace organisation or external relations.<sup>3</sup>

Innovation can therefore include any activity that improves the competitiveness and/or profitability of a firm in a sustainable manner.

The key issue that arises therefore is how to best design policies that incentivise or drive increased innovation across firms, either through increased research or through other non-research activities.

## A statistical profile of innovation across Australian businesses

An analysis of innovation activity and of barriers to that is a constructive start to devising policies for promoting innovation. The *2010–11 Business Characteristics Survey* (BCS) conducted by the Australian Bureau of Statistics (ABS) shows a gross imbalance in the size distribution of firms and the corresponding proportions of firms within each category that are engaged in any type of innovation activity.<sup>4</sup>

Across all industries, small businesses<sup>5</sup>, ie that is those employing fewer than five people, accounted for almost 61 per cent of all businesses, but only 30 per cent of

these businesses were engaged in any type of innovation activity. Businesses employing between five and 19 employees accounted for another 31 per cent of businesses and, of these, nearly half were engaged in innovation activities. At the other end of the spectrum, large firms, those employing over 200 people, accounted for only 0.5 per cent of businesses, yet two thirds of these were actively innovating.

Twenty one per cent of survey respondents cited lack of access to additional funds as a barrier to innovation, while 15 per cent cited cost of development or implementation as a barrier. By contrast, only 3.6 per cent of respondents felt that lack of access to knowledge or technology impeded the development or implementation of new innovation. Lack of skilled persons within the labour market, government regulations and compliance, and uncertain demand for new goods or services were a barrier to innovation for around 13 per cent of respondents (for each of these categories).

Therefore, funding constraints were the biggest single barrier to innovation in 2010–11. This conclusion is even more compelling when businesses are separated out into those that are actively innovating and those that are not.

For innovation-active businesses, lack of access to additional funds and the cost of development or implementation inhibited innovation in 32 per cent and 23.3 per cent of businesses, respectively. By contrast, non-innovation-active businesses were less constrained by access to additional funds and development costs (14 per cent and 10 per cent, respectively).

Lack of access to knowledge or technology constrained only 1.7 per cent of non-innovation active businesses, as opposed to 6.5 per cent of innovation-active businesses. Even so, the impact on knowledge of technology as a barrier to innovation pales in comparison to the impact of funding or cost constraints.

ABS data further shows that funding constraints are more acute for innovating smaller business than for larger ones. Funding and cost constraints were a barrier for almost 66 per cent and 47 per cent of small firms, respectively, while technological or knowledge constraints were an impediment for barely 14 per cent of the small firms. Skills shortages and demand uncertainties had an adverse impact on innovation of 34 per cent and 38 per cent, respectively for these small firms. By contrast, lack of access to additional funds (14.7 per cent) and cost of development or implementation (16 per cent) had a far smaller comparable impact on larger firms. This pattern is repeated across other categories as well.

Overall, these statistics clearly show that smaller firms are far more constrained in their ability to innovate than are larger ones, and that funding and cost constraints are the biggest impediments for all categories and sizes of businesses.

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## Innovation policies – a review

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While government intervention and assistance, and the policy instruments associated with them, can take a number of forms, they can broadly be differentiated into financial and non-financial categories. Financial assistance can involve grants, tax concessions/credits, and subsidies, while non-financial assistance includes advice, information, and mentoring. Policy instruments in support of business innovation can be grouped into two sets of further categories: *general* versus *targeted*, and *direct* versus *indirect*. Obviously these categories are not mutually exclusive and any particular policy may involve elements of each. Usually, indirect policy instruments will also tend to be general in their objectives, while direct instruments tend to be targeted.<sup>6</sup>

In Australia industry assistance and innovation programs of the government are delivered predominantly through a range of divisions within the previous Department of Industry, Innovation, Climate Change, Science, Research, and Tertiary Education.<sup>7</sup> Two of the main program areas for innovation in this department have been:

- **AusIndustry:** a specialist program delivery division within the Department that, among other things, delivered many business programs worth about \$2 billion each year; and offers a mix of financial and non-financial assistance.
- **Enterprise Connect:** sought to build the innovation capacity of small and medium enterprises (SMEs) in a diverse range of industries through business advice, support, and facilitation services; assistance was mostly non-financial, but some grant assistance was available to help implement recommendations and advice.

Closer review of these areas and the key policies they administer show both the scope of present industry assistance and the gaps therein.

AusIndustry assistance policies covered nine broad categories as follows:<sup>8</sup>

- **Clean technology:** the single-biggest component of AusIndustry's spending program, accounted for about 60 per cent of the total outlay (\$1.2 billion). Of this about \$1 billion was given out through competitive, merit-based grants, while the rest supported the research, development, and commercialisation of clean technology products, processes, and services.
- **Collaboration:** the Co-operative Research Centres (CRC) program supported medium and long term end-user driven collaborative research projects. This is primarily a support service that facilitated "proof of concept" and the building of innovation, research, and collaborative capacity of participants. Participants were selected through an annual competitive, merit-based process. The program was targeted primarily, but not exclusively, at SMEs. The selected end-users are involved from the design stage of the research, which goes from research concepts to product development, but stops short of commercialisation assistance.
- **Energy and fuels:** highly targeted and direct financial assistance provided for specific purposes and to specific organisations. This assistance aimed to incentivise a shift towards cleaner fuels and technologies by organisation and individual consumers.
- **Import and export assistance:** provided targeted financial assistance, through tariff/customs duty concessions or exemptions, for specific categories of goods. For example this included certain inputs for outer space industry projects, and imported goods intended for exports or as inputs to exports.
- **Innovation and R&D:** probably the most significant from the perspective of the present paper, the innovation and R&D assistance was delivered through three main policies: *Commercialisation Australia (CA)*, *Enterprise Solutions Program (ESP)*, and *the R&D Tax Incentive*. CA is a competitive, merit-based assistance program that provides funding, advice, and networking opportunities to companies, entrepreneurs, researchers and inventors to commercialise new intellectual property. ESP, with a funding allocation of \$29.4 million over five years, was announced by the Government as part of the *Industry and Innovation Statement* in early 2013. Its primary purpose is to provide competitive grants to eligible companies to assist them develop innovative solutions to public sector needs and to bid more successfully for government tenders. The R&D Tax Incentive replaced the R&D Tax Concession on 1 July 2011 and is a broad-based, market-driven tax offset to incentivise greater innovation and productivity by Australian companies in the global marketplace.



- Manufacturing industry: highly targeted and direct, mostly financial. Assistance provided to specific manufacturing industries such as steel; textile, clothing and footwear (TCF) and automotive, etc. The assistance is delivered both through direct grants and duty concessions, to firms of all sizes.
- Regional innovation funds: These were a series of 'Innovation and Investment Funds' delivering competitive, merit-based, and targeted assistance to firms in the Illawarra, South East South Australia, and Tasmanian regions. The primary criteria for grants, across these funds, are diversification of the economic and employment base, and provision of sustainable employment. The largest grants budget is for the Illawarra fund, valued at \$30 million.
- Small business: general, mostly non-financial assistance (advisory service and telephone support) targeted at small businesses. The only financial assistance in this category was to small TCF firms, and this too is competitive and merit-based.
- Venture capital: the various venture capital policies and programs delivered targeted and direct assistance to innovative firms. These programs involved collaboration with private venture capital fund managers to provide seed capital and professional expertise to these firms, to help them develop and commercialise research concepts. The *R&D Tax Incentive* and *Commercialisation Australia* were two initiatives (reviewed above) that complemented the venture capital policy by helping to maintain the deal flow. As reviewed earlier, the former is a broad-based program while the latter is a targeted, merit-based, competitive program.

A new initiative, *Venture Australia*, was announced by the Labor Government in February 2013 to provide high-risk capital to innovative companies with a high growth potential. The package will provide \$378m in capital, part of which will be matched by a dollar for dollar contribution by private sector investors.

There are other government assistance initiatives tucked away in various portfolios, but the AusIndustry list of programs applying in 2013 illustrates several issues that help understand why current assistance has not been able to fully redress problems in Australia's innovation standing. For example, industry assistance to SMEs is primarily available through either competitive grants and tax concessions on the one hand, or through non-financial advisory and support services on the other. Competitive grants are always application and merit-based and capped rather than demand-driven, while tax concessions are demand-driven but may require certain pre-requisites relating to type of industry, activity, or products (including imports). In most cases, eligibility requirements for grants treat innovation and R&D as synonymous, even though the former is often defined elsewhere as being much broader in scope.<sup>9</sup>

The industry assistance most easily accessible to SMEs is of a non-financial nature. However, it can be asked how useful the non-financial forms of support alone are in fostering innovation across these SMEs if the latter face seemingly insurmountable financial constraints.

Therefore these policies collectively reveal significant remaining coverage gaps. Non-financial assistance would limit the ability of firms to implement many of the recommendations gained through advice and support, while grants would help only a small fraction of SMEs. They, and the various offsets and concessions, also effectively preclude most firms in most of the 19 broad industrial divisions identified by the ABS. This means there are likely to be major gaps especially for firms that need funding for non-R&D innovations, or for firms that do not have the capacity or skills to implement changes in order to become eligible for competitive grants.



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## Policy challenges

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Given Australia's modest standing in the innovation rankings and given the need for better productivity through innovation, the question is how policy settings might best be improved?

Some indication of an answer was given in the previous section of this paper. Similarly, Denniss et al concluded that:

The current approach to increasing investment and international competitiveness in Australia through innovation is intellectually ad hoc, subject to the vagaries of program change, and either provides assistance to only a relatively small number of firms and industries because of caps and quotas or does not discriminate between firms which would innovate without assistance and those that would not.<sup>10</sup>

One key step towards better focus and prioritisation that is flagged by the ABS Survey evidence is to improve access to financing, particularly in the case of smaller firms, as their size effectively precludes them from the funding sources more reliably available to their larger, more well-established counterparts.<sup>11</sup> For example, capital (equity or debt) markets are ruled out to a significant extent due to their size. Nor do such firms have the organisational, financial, and legal expertise to negotiate or execute these deals. The non-research intensive activities of (most) smaller firms also further severely curtails their eligibility for competitive government grants, which are closely capped anyway.

Two other sources of finance are venture capitalists and commercial banks. Venture capital is a useful but insufficient alternative still for many because it typically does have a higher investment threshold than most of the smaller businesses can afford or support. An anecdotal rule of thumb in Australia is that venture capital is rarely available for projects under A\$5 million. This can lead to financing gaps. Furthermore, in almost all cases, equity and/or management positions by investing firms are a pre-condition of venture capital financing; the resultant loss of entrepreneurial autonomy might be unacceptable to some owners, especially those of new start-ups who want comparatively more leeway in directing/guiding their pet projects.

Financing by commercial banks by contrast imposes up-front repayment obligations on borrowing firms. This may place substantial pressure on firms if the innovation projects have long gestations and if the expected cash flows do not materialise until much later. Commercial banks often also require collateral in order to sanction business loans, which for many small business owners is the family home. The possibility of losing the family home due to delayed cash flows or failure of the innovation project may create an unacceptable level of risk for the owners and make them all the more risk averse.

Finally, firms may not have the managerial or marketing capacity to take on the extra risk associated with new innovation projects. They may be limited in their skill set, especially in the case of family-run firms, and may have limited understanding of or access to larger, global product markets. All these factors, such as unfocussed government policy, shallow financial markets, and limited capacity for risk, collectively create a significant 'failure of the innovation-financing market', and therefore serve to stifle the level of innovation in the economy.

## Income-contingent loans – a finance innovation for industry policy

The access to finance problems described above are a significant market failure, and create an imperative for effective and determined intervention by the Government. Obviously, existing policies have not been sufficient to redress this market failure problem, and may have even aggravated it. The further question then is, if current policy arrangements are inadequate, what alternative policies could offer viable solutions?

A reconsideration of government policies must therefore involve, as above, an evaluation of the extent and effectiveness of policy instruments intended to aid the innovation performance of all firms generally, but smaller firms in particular, given their widespread significance, proliferation in the economy and the particular problems they face in supporting innovation efforts. But it can also involve thought about new policies for example policy innovation for innovation.

The 2009 Green Report and various government reports have stated explicitly the importance of and need for increased across-the-board innovation in the wider economy. Australia's Chief Scientist, Professor Ian Chubb, has championed the call for a culture of innovation and continuous self-improvement in Australian industry.<sup>12</sup> This is all the more important in the context of industry assistance generally, and innovation policy in particular, which must seek to overcome the disadvantage of distance that Australia's relatively remote location creates even in the Asian Century. Value adding innovation is the solution to the tyranny of distance in accessing global markets and in serving domestic markets better too. Innovation is the engine of growth in the modern knowledge economy.

Yet market processes in relation to innovation finance do have some severe limitations. Governments can respond to this by doing two things: improving the pre-finance capabilities of firms, and assisting with finance to better foster allocative efficiency, including provision of the external benefits otherwise lost to the economy.

However, along with recognising this role for government, it is financial institutions that have the infrastructure and networks for selection, screening and monitoring needed for any comprehensive processing and provision of finance to businesses. At the same time the innovating firms themselves must wear part of the cost of support as well, since further problems of moral hazard and asymmetric information will otherwise arise.

This logic suggests the need for an integrated program to support skill enhancement and financing for small business innovation based on a partnership between enterprises, government and financial institutions. Other schemes to assist small business innovation do exist, as indicated. However, they typically do not draw on the full complementary range of expertise and motivation and so often embed poorly aligned incentives for firms, are inflexible and distort loan priorities and do not address human resource development in getting firms' finance ready.

Therefore it seems apposite to propose a scheme that would require firms to have had or to undergo business training and to accept assistance in developing proposals to a finance-ready stage as a condition of entry into assessing and approving financing arrangements; and, here is the novel element, which would provide part of the finance through a revenue-related loan to be repaid through taxation on future positive net earnings to complement a further proportion of the finance that would be provided on normal commercial terms.

This latter provision would involve government providing a default-protected loan mechanism where commercial banks are reluctant to take on all risk. We can justify government assuming a share of risk by the pooled probability within such an approach of a high social pay-off through the opportunities generated from small business innovation activity that would not otherwise be undertaken.

In this approach taxpayer subsidies can be recovered but only where the investment supported has paid off. The scheme therefore provides a form of revenue or profit smoothing so as to diminish financial pressures precisely at the time this is most needed. In this way government also expands the pool of venture capital for small innovative businesses.

A training requirement and commercial assessment under the partnership principle would help minimise risks. The phases in this process should be at arms-length so that financing decisions are made separately from project development. The drive and responsibility for the success of the projects after pre-finance assistance and suitable finance provision will then rest directly with the firms themselves.

Such a scheme would have the following advantages:

- It could act to improve the functioning of loan markets where innovation activities are below what a government might consider to be optimal;
- Some part of taxpayers' subsidies would be recovered when the enterprise is succeeding commercially. There is also an important "mutual responsibility" dimension;
- It is fair that average taxpayers don't foot the bill for all subsidies to successful enterprises. The fact that there are returns to the public sector should also be seen as desirable because of the associated potential to reduce national budgetary pressures.
- The repayments allow the financing of more innovation projects than could be forthcoming if the scheme was solely grant financed (or through lower taxes, or higher provision of alternative government services); and
- Such a scheme essentially provides a form of revenue (or profit) smoothing, and therefore diminishes financial pressures on small innovative enterprises at the time when this is most needed.

There is a well-developed version of this approach in the existing Australian and global<sup>13</sup> literature where further detail on design features and implementation is available.<sup>14</sup> And interestingly there is clear evidence that it would receive strong public approval as seen in Table 2. Coincidentally, the incoming Treasurer, Joe Hockey, has recently flagged a new role for government to reduce business risk.<sup>15</sup>

**TABLE 2**  
**COMMUNITY ATTITUDES TO INCOME-CONTINGENT LOANS FOR R&D**

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
All respondents	18	43	19	15	5
Employer receives R&D assistance	13	32	14	28	13
Employer doesn't receive R&D assistance	19	44	19	14	4

Source: Higgins, T. and Withers, G. (2009), "Community Attitudes to Income Contingent Loans", *Australian Journal of Labour Economics*, 12(2), 217–236.

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## Conclusion

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A new way forward to fill a major gap in access to finance for SME should be developed, which would help enhance Australian innovation and productivity. The pioneering model developed for income-contingent loans by Australia for universities can be used a basis for the proposed policy framework for innovation.

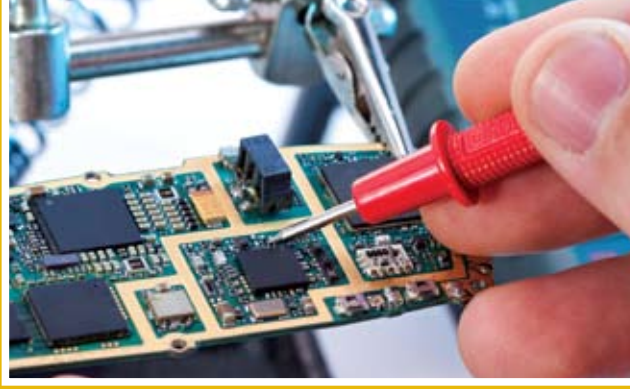
The approach also offers a highly cost-effective option for support for innovation in a time of fiscal restraint: it focuses public dollars on the core problem for much innovation and it provides a return on those dollars for the community, including for ploughing back into the scheme itself. Some serious policy work on implementation is needed by government in this area.

Indeed, a new government should just ‘do it’.

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## Endnotes

- 1 Green, R. (2009), *Management Matters in Australia: Just How Productive are We?*, Report commissioned by the Department of Industry, Innovation, Science and Research, Commonwealth of Australia, Canberra.
- 2 Gruen, D. (2012), *The Importance of Productivity*, Presentation to the Productivity Perspectives Conference, Canberra, November 2012.
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- 4 ABS (2012), 2010–11 *Business Characteristics Survey*, cat. no. 8167.D0007, Canberra.
- 5 The ABS defines small firms as having less than 20 employees. However, this paper uses further disaggregation, between firms with 0–4 employees and with 5–19 employees, to illustrate the acute imbalance in innovation performance.
- 6 Denniss, A., Yuan, M. & Withers, G. (2009), “Innovation Financing and Use of Income Contingent Loans”, *Australian Journal of Labour Economics*, vol.12, no.2, pp.145–165.
- 7 DIISRTE (2012), 2012 *National Research Investment Plan*, Commonwealth of Australia, Canberra.
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- 9 OECD (2005).
- 10 Denniss et al. (2009).
- 11 Australian Bureau of Statistics (2012), 2010–11 *Business Characteristics Survey*, cat. no. 8167.D0007, Commonwealth of Australia, Canberra.
- 12 Ian Chubb, Presentation, *Future Policy for Future Technology* Workshop, Canberra, February 2013.
- 13 Withers, G., and Gupta, N., (forthcoming), “Income contingent loans for business innovation” in Stiglitz, J., Chapman, B., and Higgins, T. (eds), *Income Contingent Loans: Theory, Practice and Prospects*, New York, Palgrave MacMillan.
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- 15 Crowe, D. “Joe Hockey Nation Building Strategy”, *The Australian*, 8 October, 2013.



## 3.4

# A proposal for industry-led innovation consortia

## Professor Beth Webster



Professor Beth Webster is the Director of the Intellectual Property Institute of Australia (IPRIA) and a Professorial Fellow at the Melbourne Institute of Applied Economic and Social Research, the University of Melbourne. She has authored over 100 articles on the economics of innovation, intellectual property and firm performance and has been published in *RAND Journal of Economics*, *Review of Economics and Statistics*, *Oxford Economic Papers*, *Journal of Law and Economics* and *Cambridge Journal of Economics*. Beth has been appointed to a number of committees including the Commonwealth Government's Advisory Council for Intellectual Property, an Australian Council of Learned Academies Expert Working Group, the Advisory Council for Intellectual Property, Expert Review Group – New Sources of Growth – Intangible Assets, OECD. Beth is a Board Member, European Policy for Intellectual Property Association; and Board Member, Asia Pacific Innovation Network.

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## Introduction

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Innovation – the introduction of new-to-the-firm or new-to-the-world products and methods of production – is a necessary requirement for ongoing competition. Without innovation, other types of competitive action – advertising, training or price cutting – are subject to diminishing returns. You cannot keep cutting prices without making your production method more efficient and there is little point forever increasing staff training if your products and production methods are static. Therefore over the long haul, businesses must change their product line-up or mode of production in order to remain competitive. The major side-effect of this competitive process is that businesses raise national productivity and thereby our standard of living. Empirical studies consistently find that spending on Research and Development (R&D) raises productivity both in the business that undertakes the R&D and in surrounding businesses.<sup>1</sup>

However, from a policy perspective, new-to-the-world innovation is not just another business investment. This is because frequently it is not possible for the business which has funded the up-front costs of innovation – chiefly the costs of creating and making the idea commercial-ready – to reap most of the benefits from the innovation. As a result, often good ideas lapse and fall by the wayside. That is, many ideas that would have considerable benefit to society are not profitable for business. However, new-to-the-world innovation is challenging for society in another respect: it is highly uncertain. The degree of uncertainty carried by investments into innovation dwarfs the uncertainty associated with investments into physical assets. There comes a point at which some investments are too risky for even the largest business to undertake (think of space exploration). In this situation, society as a whole, using government as their agent, bears the risk.

Given this, there is a clear rationale for public support for new-to-the-world innovation but there are some circumstances when assistance to promote new-to-the-firm innovation is also justified. When new-to-the-firm innovation spreads across a market, productivity rises, prices fall and consumers benefit. Accordingly, if an external intervention can hasten the path of laggard businesses towards the efficiency frontier, then there is a case for intervention.

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## How does Australia rank?

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Successful positioning on the technological frontier is a high stakes game that requires businesses to adopt best practice behaviours and technologies all the way along the production chain. It is a myth that Australia's efficiency in mining and agriculture is principally due to our abundant natural advantages. Many countries in Asia and Africa also have substantial resources and rich pastures but have not been in a position to use them effectively. Our continued success in mining and agriculture is due to the combined efforts of specialist R&D, education and training, business service and finance sectors that deliver miners and farmers a high-performing innovation platform in which innovation can flourish.

However, there is a growing concern that we are not close to the technological frontier in other industries. Assessing how close Australia is to this frontier is not an exact science. Nonetheless, there are a number of regular international scorecards and benchmarking indices which give us an approximate clue as to how we rank next to our peers. The United Nations and the Organisation for Economic Co-operation and Development (OECD) are foremost in this activity and both produce regular reports

that rank either our technologies or our innovation systems. In 2012, the OECD ranked Australia as 20 out of 26 countries on its patent quality index; the United Nations (UN) ranked us 23 behind almost all other OECD countries on its Global Innovation Index. However, more worrying is that while the UN ranked us about 13 on the calibre of our innovation inputs (institutions, infrastructure, and knowledge workers), our innovation output was considered so low that our innovation efficiency was ranked 107 in the world.<sup>2</sup> This was behind most OECD countries and many middle-income countries. What is letting us down is knowledge diffusion (86), knowledge absorption (60) and innovation linkages (36). By contrast, our infrastructure and our political, regulatory and business institutions are ranked among the top dozen or so countries. We do well on some aspects but not others.

What I will argue here is that although we have strengths in a number of areas and are well served by a number of government-led programs to encourage knowledge diffusion, knowledge absorption and innovation linkages (such as the Enterprise Connect, CSIRO, Australian Research Council and the medical research council industry co-operation programs), what is missing are industry-led programs in the non-agricultural and non-mining industries.<sup>3</sup> In agriculture and mining we have a number of knowledge diffusion and linkage programs that industry leads such as Australian Minerals Industries Research Association (AMIRA) and the rural R&D corporations. However, equivalent institutional structures in other industries are scarce.

I believe businesses need to take the reins to build knowledge creation and diffusion architecture for their specific industrial niche. Industries need to take the lead in identifying themselves as potential areas of national strength. Research has consistently shown that the qualities of management matter most as a driver of change rather than the industry.<sup>4</sup> If businesses take this initiative, the Government should be ready to provide matching funds in recognition that the benefits of this structure will extend to the community at large. The Australian R&D corporation model is one such collaborative structure that deserves closer inspection.<sup>5</sup>

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## An R&D corporation for all industries

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R&D corporations are co-operative, industry-owned groups that fund R&D for the benefit of members. Funds typically come from a mix of industry levies, membership fees and government funds.<sup>6</sup> This leaves industry free to design the mechanism by which these funds are allocated to R&D projects. Strategic R&D priorities are identified by the industry through a range of consultative activities and the research is targeted at specific industry needs. For this system to work, members must have similar technological needs and be able to find areas of common technological interest. As Australia becomes progressively integrated into the global economy, we are finding that our direct competitors come not from within Australia, but elsewhere in the world.

There are five desirable features that should be embedded in any knowledge creation and diffusion architecture: industry buy-in; stability; trust and connectedness; explicit channels of translation; and additionality. Our current rural R&D corporation model embodies most of these desirable features.

**Industry buy-in:** The R&D corporations are industry owned; they are funded by industry levies (with matching public money); industry decides on the R&D projects; and industry owns the resulting IP. Since the R&D corporations are owned by the industry, they have strong incentives to actively engage with their members. Members can potentially benefit without expending managerial resources on monitoring research



projects or engaging with government policy; that is, each and every member does not have to be actively engaged in order to benefit from research. In addition, members tend to resist funding research projects that only benefit one business and focus on projects with maximum intra-industry benefits. R&D corporations have a significantly higher level of industry funding than other collaborative schemes, such as Collaborative Research Centres and Australian Research Council (ARC) and National Health and Medical Research Council (NHMRC) Linkage grants, which leads to a much greater buy-in from industry.

**Stability:** Long term durability in innovation architecture is essential to building a core of Australian R&D and commercialisation expertise in specialist areas. Expertise is essential to being on the world frontier of research and technology and, to access this, R&D corporations typically outsource their research to public sector research bodies. Stability is also necessary for the knowledge about how to access and use the innovation system to penetrate industry. Because the R&D corporation model is established by an Act of Parliament, it is very stable. This enables players in the industry to plan ahead; a feature that is critical for developing efficient long term R&D and an innovation agenda that is responsive to industry needs.

**Trust and connectedness:** Trading knowledge, know-how and other forms of intellectual property are fraught with uncertainty and vagueness which can often make it difficult for two parties to exchange knowledge and collaborate. However, specialisation and exchange are vital to sustaining a position on complex technological frontiers. Research has shown that trust, informal relationships and connectedness between people in the industry, and its broader constituent parts, is one way these costs to trade can be minimised.<sup>7</sup> The R&D corporation model builds networks, which form the basis for trust.

**Explicit channels of translation:** Creating new ideas and technologies does not automatically mean they will be used and exploited. The R&D corporation model has an in-built extension program that ensures that ready-to-use ideas are transmitted to the end-user (for example, farmers). A similar model for other industries should also build in pathways for ensuring that new R&D and innovation results are delivered to firms.

**Additionality:** Public monies should aim to leverage business spending on innovation, and not replace it. There has been a lot of academic and government research, especially overseas, which seeks to quantify whether public monies create additional business spending on innovation. However, there is no consensus among the results which suggests it depends on program design.<sup>8</sup> Selecting R&D projects based on industry consensus, as in the case of R&D corporations, provides a clever solution to the additionality issue since members will resist jointly funding research projects they are performing individually and will tend to focus on projects with maximum intra-industry spillovers.

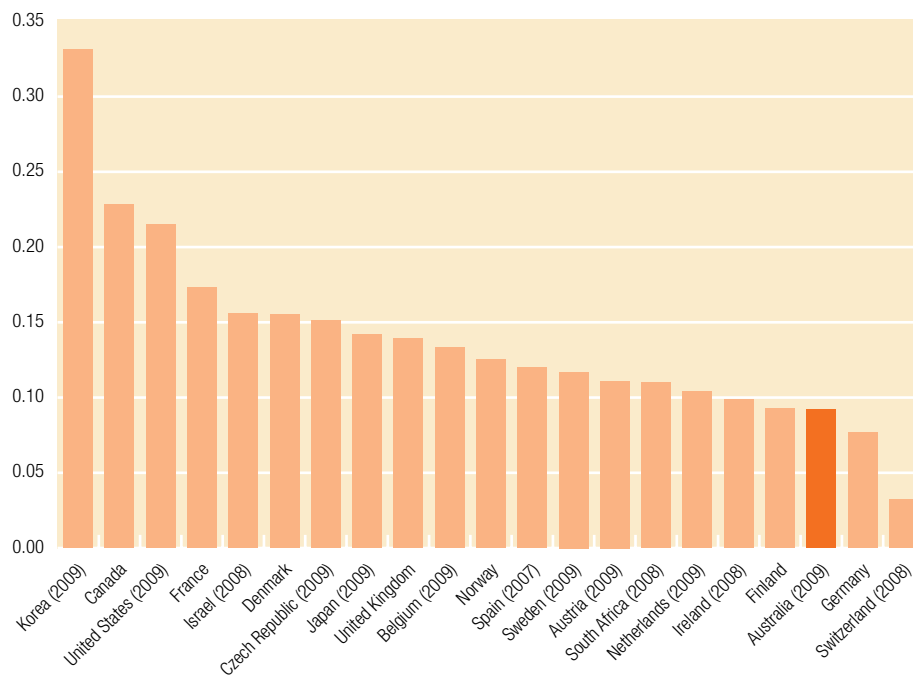
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## How much government support should be given?

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There are very strict principles in economics about what justifies government (taxpayer) support for business activities. For the main part, public support demands the presence of substantial benefit to third parties from the activity. For innovation activities, the third party consists of all people other than the business conducting the initial R&D and their customers. By far the largest third-party group is the general body of consumers who benefit, in perpetuity, from lower prices or better products as a result of the innovation spreading via imitation to other businesses. In the first instance following an

**FIGURE 1**  
**DIRECT GOVERNMENT FUNDING OF BUSINESS R&D AND TAX INCENTIVES FOR R&D AS % GDP**



Source: OECD, Main Science and Technology Indicators (MSTI) Database, June 2012; OECD R&D tax incentives questionnaires, January 2010 and July 2011, and national sources, based on OECD (2011), OECD Science, Technology and Industry Scoreboard 2011, OECD, Paris.

innovation, there are probably few external beneficiaries. When one business develops a more efficient machine or new and improved product, the business will have some advantage over its competitors and should receive higher profits through better prices, more sales or lower costs of production. These are the direct rewards to the innovator. However, as the idea behind this new method or product spreads across the market, prices gradually fall with the ultimate beneficiary being the mass of consumers who have made no direct investment into the innovation. Because these benefits are ongoing (ideas do not wear out) these benefits are large.<sup>9</sup>

Analysts often overlook the benefits received by third party consumers and this may explain why the Productivity Commission believed governments should not subsidise the existing rural R&D corporations.<sup>10</sup> However, the view that third party benefits are very large is not only consistent with deductive logic but also the substantial body of international empirical studies recently summarised by Hall, Mairesse and Mohnen.<sup>11</sup> The presence of high levels of external benefits in these studies suggests that the current level of government support for business R&D and innovation is, on average, too low.

How far too low is a difficult issue to deal with in such a short article, and I would like instead to simply compare Australia's record with other comparator countries. The data are clear: compared with other developed Western nations, Australian Governments' support for business sector innovation is small. Although R&D is only one part of total innovation spending, it represents the most consistent and universal data we have on innovation activities. Figure 1 shows the percentage of business R&D that is financed by government in a range of developed economies. It shows that for the most recent year, the US Government committed over 0.22 per cent of GDP to business R&D and the UK Government 0.14 per cent. Other high government support countries include Israel, France, Denmark, South Korea and Canada. By contrast, Australian Governments only provided 0.09 per cent of GDP which is only higher

than Germany and Switzerland. One should not put too much emphasis on this sort of gross comparison. Other countries may be overcommitting public monies, or the manner in which public support is given may matter more than the amount. But it is worth bearing in mind when people erroneously suggest that Australian Governments are generous in this area.

In Australia, a significant proportion of government support for R&D is provided to publicly funded institutions and a large minority of direct funding for business innovation comes from the R&D taxation concession. We have little evidence – of the sort an economist would regard as rigorous and objective – on the effectiveness of comparative programs. The little evidence we do have relates almost entirely to the R&D tax concession. In this respect, research by economists, both here and overseas, suggests that for each \$1 government spends via the concession on tax incentives, business raises their R&D spending by \$1.<sup>12</sup> In other words, the R&D tax concession does not lead to a net increase in R&D spending overall; its effect on innovation is through changing which party decides how the money is spent (innovative businesses or government). With respect to other forms of public support, we have to rely on overseas evaluations for evidence. Two of the most consistently evaluated innovation programs in the world are the US-based innovation-procurement Small Business Innovation Research and Defence Advanced Research Projects Agency programs.<sup>13</sup> The evaluations are consistently positive. For example, one key study found that participation in the program led to a 5-fold increase in employment (and a two-and-a-half-fold increase in sales) compared with an equivalent business which did not participate.<sup>14</sup>

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## Conclusion

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The alarm bells should be ringing about the rate at which our non-primary sector industries are slipping behind not just other high-income countries but increasingly middle-income countries such as Malaysia, South Korea and the Czech Republic. Our greatest deficiency is about how we diffuse and transmit our knowledge throughout industry: the calibre of our political and regulatory institutions and the quality of our physical infrastructure is by contrast quite respectable.

Improving the diffusion and transmission of knowledge around and within industry is a matter that should be led by industry. There is only so much governments and their public servants can do directly. I recommend industry consider adapting the rural R&D corporation model and appeal to government to come to the party with matching funds.

The independence of R&D corporations and their mission to operate strictly in the industries' interests represent key advantages of industry R&D corporations. However, R&D corporations are costly to establish and government influence appears to have been important in establishing existing corporations.<sup>15</sup> The R&D corporation model has been designed to meet the needs of export-orientated industries producing largely undifferentiated commodities and would need to be adapted to meet the needs of the non-rural sector. However, its major features of permanence and ownership by industry are so compelling that we should not overlook the potential for this model to work in other settings.

While R&D corporations share similar features with recently announced industry-led innovation precincts, the advantage of the R&D corporation model is its comparative permanence. A program that is established under an Act of Parliament is less prone to annual budget cuts. It is this distinction that sets it apart from the recently

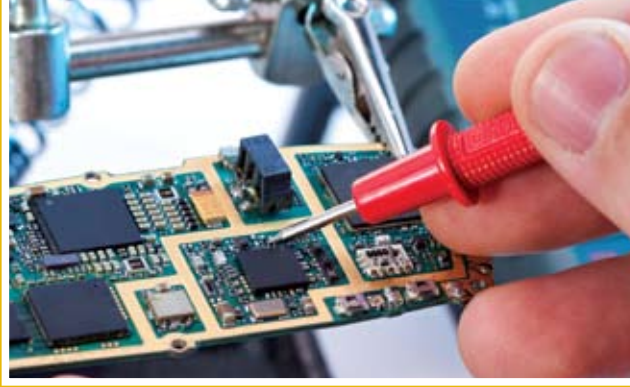
announced. Whereas precincts propose to share many of the features of the R&D corporations, they are not protected by an Act and are therefore vulnerable to changes of government, or ministerial, direction. Confidence in the longevity of a program gives the industry, and the research community that services it, the reassurance it needs to establish the serious research, development and translational capabilities and the architecture that supports them. It is a non-trivial task to establish institutions and train people who are expert in converting research findings into useful knowledge for industry and who ensure that all relevant businesses are kept abreast of these developments. Businesses will benefit from having a dedicated cadre of people who liaise and transmit information between researchers and business, peak bodies and isolated units, and industry and government.

*I would like to thank Paul Jensen, Tim Kovess, Matt Dummett, Maryann Quagliata, Vince FitzGerald, Nathan Taylor, Russell Thomson, Alfons Palangkaraya and Gaétan de Rassenfosse for useful comments.*

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#### Endnotes

- 1 Hall, B., Mairesse, J. and Mohnen, P. (2010), 'Measuring the Returns to R&D', in *Handbook of the Economics of Innovation, Volume 2*, edited by Bronwyn H. Hall, Nathan Rosenberg.
- 2 The authors of The Global Innovation Index 2012, p22 are quick to point out that high or low efficiency is not a goal per se but should be used to indicate where an economy is performing poorly; United Nations (2012) *The Global Innovation Index 2012, Stronger Innovation Linkages for Global Growth*, edited by Soumitra Dutta, World Intellectual Property Office and INSEAD, Geneva and Paris.
- 3 According to the Office of the Chief Scientist, Australia is above the European average in veterinary science, energy, engineering, earth and planetary sciences, and medicine (see West 2013).
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- 5 For further information, see Productivity Commission (2011) *Rural Research and Development Corporations*, Final Inquiry Report No. 52, Productivity Commission, Canberra.
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- 7 Jensen, P., Palangkaraya, A. and Webster, E. (2013) 'Trust, Incomplete Contracts and the Market for Technology', Melbourne Institute Working Paper No. 3/13, University of Melbourne.
- 8 Thomson, R. and Webster, E. (2012) 'The Design of R&D Support Schemes for Industry', *Economic Papers*, vol.3, pp.464–477.
- 9 Even if the products are exported the Australian householder benefits since our national ability to export allows us to import. For example, the more efficient our agriculture and mining sectors, the higher is our dollar and the greater is our ability to import TVs, computer and overseas holidays.
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- 13 The Victorian Government operates a similar program called the Market Validation Program.
- 14 National Research Council (2008) 'An Assessment of the SBIR Program', in *Committee on Capitalizing on Science, Technology, and Innovation: An Assessment of the Small Business Innovation Research Program*, edited by Charles W. Wessner, National Research Council, <<http://www.nap.edu/catalog/11989.html>>.
- 15 Rural R&D corporations were established by an act of parliament (*Primary Industries and Energy Research and Development Act 1989*). Government played an important role in establishing most R&D corporations.



## 3.5

# Sectoral revolution through technological developments

## Dr Ian Oppermann



Dr Ian Oppermann is Director of the Digital Productivity and Services Flagship, a \$44 million research initiative from the CSIRO to help improve the way services are delivered in health, financial and government sectors and to help organisations make the most of national broadband infrastructure.

Dr Oppermann has 20 years' experience in the ICT sector and has held senior management roles in Europe and Australia as Director for Radio Access Performance at Nokia, Global Head of Sales Partnering (OSS) for Nokia Siemens Networks, and recently as ICT Centre Divisional Chief at the CSIRO. He has an MBA from the University of London and a Doctor of Philosophy in Mobile Telecommunications from Sydney University. He is a Fellow of the Institute of Engineers Australia, a Fellow of the IEEE, a Senior Member of the Australian Computer Society, and a member of the Australian Institute of Company Directors.

Australia has received praise from many quarters for its strong and resilient economy. In the face of a long lasting global financial crisis, this success is largely the result of the strength of Australian commodities markets, especially mining, coupled with steadily increasing demand from the emerging Chinese and Indian super economies.

Against the background of this strong and sustained resources demand, productivity growth in Australia has fallen significantly over the last decade across most industry sectors. Australia's relative productivity decline has seen multi-factor productivity decline significantly in comparison to Organisation for Economic Development and Co-operation (OECD) countries. Australian labour productivity relative to the US has gone from almost 92 per cent in 1998 to just over 84 per cent in 2010.<sup>1</sup>

This leaves Australia in a vulnerable position for a post-mining boom economy. Australia's challenge is to maintain a competitive edge in an increasingly complex and resource-limited world. Like other leading world economies, Australia must also anticipate the needs of an ageing population which will place increased demands on health and human service delivery. Recognising and responding to this trend in an innovative way is essential if Australia is to be assured of a strong economic and social future.

The services sector represents the bulk of Australia's economy and touches all industries. However, Australia lags behind other OECD countries in terms of the strength of its service economy. Australia's growth in the services sector has slowed compared to developing nations such as India and China, where the range of services is expanding as their workforce becomes increasingly skilled and their populations educated and knowledgeable.

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## 1. The capacity for technological developments to radically reshape the nature of service delivery

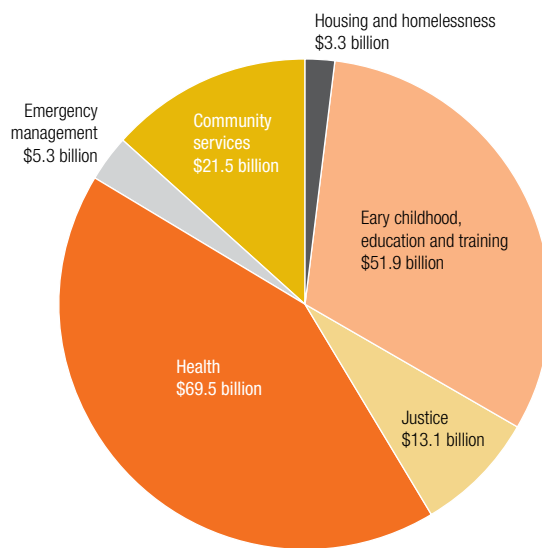
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Since the industrial revolution, the manufacturing sector has constantly evolved increasing productivity many fold, driving down the cost of manufactured goods and increasing the economic wealth of individuals and nations alike. Like most developed countries, Australia now has a predominantly services based economy and we are only just beginning to imagine how the services sector could reach similar productivity gains.

Australia's Gross Domestic Product (GDP) is currently approximately \$1.5 trillion.<sup>2</sup> Of this, approximately 6.4 per cent is Federal Government spending, 10.8 per cent is state and local government spending, and 4.5 per cent is public capital expenditure. Total government (excluding defence) contribution to GDP including spending on capital projects, goods, services and salaries is approximately 23 per cent of GDP or \$345 billion. The major areas of government spending include health (\$69.5 billion), and justice (\$13.1 billion).<sup>3</sup> This chapter considers the opportunity for productivity gains in services delivery through two seemingly unrelated sectors.

Today, the health sector is the largest employer in Australia. With an estimated 20 cents from every dollar raised from government revenue going into the provision of healthcare, this is predicted to rise to 40 cents by 2043. Australia faces a complex mix of long term challenges, an ageing and growing population, escalating pressures on the health system, and an environment vulnerable to climate change. These challenges will place substantial pressure on Australia's economy, living standards and government finances over the next 40 years. These are challenges affecting developed countries around the world.<sup>4</sup>

**FIGURE 1**  
**ESTIMATED GOVERNMENT RECURRENT EXPENDITURE ON SERVICES**



Source: Report on Government Services 2012, Vol 1, Productivity Commission, Canberra

The civil justice system sustains and fosters social stability and economic growth through a network of courts, tribunals and legal processes that:

- Resolve civil disputes and enforce a system of legal rights and obligations;
- Respect, restore and protect private and personal rights; and
- Resolve and address the issues resulting from family conflicts and ensure that children's and spousal rights are respected and enforced.

By contrast with criminal justice, civil cases involve participants using the legal system as a matter of choice to settle disputes, and the types of parties and possible dispute resolution approaches vary considerably. In the civil justice system, courts deal with civil law matters. The civil justice system involves the interaction of a number of practices, procedures and case management processes aimed at achieving fair, accessible and effective dispute resolution. Courts are also not the primary means by which people resolve their disputes. The vast majority of disputes are settled outside of the formal court system, and even the disputes that use the formal court system often resolve before the dispute is fully litigated in a court room trial.

The court administration backlog indicator is a measure of the age of a court's pending caseload against nominated time standards. The number of cases in the nominated age category is expressed as a percentage of the total pending caseload, and national standards have been set for each level of court. Whilst performance relative to the time standards indicates effective management of caseloads and timely accessibility of court services, time taken to process cases is not necessarily court administration delay. Some delays are caused by factors other than those related to the workload of the court for example, a witness being unavailable or deliberate delay by one or both parties for strategic or forensic reasons. Figure 2 shows the 2011 results for case backlog for civil matters for several courts.

Another measure is finalisations. Finalisations represent the completion of matters in the court system. Each lodgement can be finalised only once. Matters may be finalised by adjudication, transfer, or another non-adjudicated method (such as withdrawal of a matter by the prosecution or settlement by the parties involved).



**TABLE 1**  
**BACKLOG INDICATOR – ALL CIVIL MATTERS AS AT 30 JUNE, 2011**

	Unit	NSW <sup>a</sup>	Vic.	Qld.	WA	SA	Tas.	ACT	NT	Aust courts
<b>Higher<sup>b</sup> – appeal</b>										
Pending caseload	No.	667	430	152	205	85	52	43	30	324
Cases > 12 months	%	24.3	31.4	14.5	13.7	12.9	9.6	20.9	13.3	6.8
Cases > 24 months	%	7.2	7.2	1.3	3.9	2.4	1.9	–	3.3	1.5
<b>Higher (excl. probate)<sup>b</sup> – non-appeal<sup>c</sup></b>										
Pending caseload	No.	14,537	12,412	9510	7020	4085	830	1404	166	2732
Cases > 12 months	%	24.4	26.1	26.8	27.3	39.9	32.5	51.9	37.3	34
Cases > 24 months	%	8.2	9	5.5	10.2	19.9	12.3	27.1	18.7	20.9
<b>Supreme/Federal – appeal<sup>b,d</sup></b>										
Pending caseload	No.	572	351	101	128	74	52	43	30	324
Cases > 12 months	%	27.4	34.8	–	17.2	14.9	9.6	20.9	13.3	6.8
Cases > 24 months	%	8.4	7.4	–	5.5	2.7	1.9	–	3.3	1.5
<b>Supreme (excl. probate)/Federal – non-appeal<sup>c,d</sup></b>										
Pending caseload	No.	7256	5607	4694	2720	707	830	1404	166	2732
Cases > 12 months	%	26	28.7	33.3	34	28.7	32.5	51.9	37.3	34
Cases > 24 months	%	11.9	9.7	7.2	14.4	13.2	12.3	27.1	18.7	20.9
<b>District/county – appeal</b>										
Pending caseload	No.	95	79	51	77	11	–	–	–	–
Cases > 12 months	%	5.3	16.5	43.1	7.8	–	–	–	–	–
Cases > 24 months	%	–	6.3	3.9	1.3	–	–	–	–	–

a Data for NSW Supreme court are partially estimated and subject to verification. The pending number relies largely upon data derived from interim reports that have not yet completed User Acceptance Testing.

b Higher refers to State and Territory supreme and district/county courts combined, and includes the Federal Court.

c Non-appeal matters for the Federal Court include a significant number of Native Title matters which by nature are both long and complex.

d During 2009–10, the Supreme Court of Victoria implemented a new Case Management system and associated Courts Data Warehouse. This has required changes to work practices in registries and judges' chambers and introduced new systems and opportunities for improved data analysis.

Source: Report on Government Services, 2012

While seemingly unrelated, these sectors share a number of characteristics in that both sectors:

- Are primarily knowledge intensive services industries;
- Are highly regulated;
- Are characterised by large government organisations (hospitals and courts) and a large number of small firms or sole practitioners (GPs, specialists, solicitors and barristers);
- Have little external transparency; and
- Have a focus on primary use of data for example for the patient or client, with little motivation for secondary uses of data

To clarify the point on transparency, what is meant here is the sharing of data. Patient records are held by the physician or hospital. Client records are held by the solicitor, and may be protected by privilege. Often records are kept electronically in human readable form. However, there is little incentive to share data and in some cases there may be legal reasons why it cannot or should not be shared.

Transformational information and communications technology (ICT) developments including wider availability of cloud services, the open data revolution, increasing broadband availability and the increasing availability of high-speed broadband communications bring us to a unique position in our history. We are on the cusp of a new era of service delivery in many areas, including in services delivery. The opportunity exists for government to strive for ever more pervasive use of evidence-based policy and decision support; undertake service delivery transformation and develop truly customer centric services – wrapping the service provider around the customer, and services personalisation.

### 1.1 Freeing words from paper – the power of ontology

Much has been said of the productivity improvements the world experienced when we moved from paper-based office systems, typewriters and paper-based correspondence; to the world we live in today with computers, integrated office software and email. These changes were truly transformational and the productivity impacts are real. However, the reality is that we now operate in a world which is an electronic version of the paper-based systems we once had. Our electronic documents are replicas of old paper systems which can be made real at any time by printing. Depending on style, our email correspondence is akin to notes scribbled and passed down the hall, or an e-version of a letter laid out in remarkably similar fashion to something you would find from the 1960s. Apart from some relatively simple template based transactions, much of this material is still written by people and intended to be read and processed by people. As the world becomes increasingly connected, increasingly data driven, and ever more demanding of real-time, personalised service, we have managed to make people the bottle-neck in a system. Electronic versions of paper based systems allow us to move much more information around at much greater speed, but do little to change the inherent ability of people to process data or information into knowledge. If in doubt, take a look at your email in-box on Friday afternoon.

Part of the reason for still requiring ‘people in the loop’ is because the world is complex, subject to interpretation or is inherently ambiguous. A powerful way to take subjectivity out of our understanding of the world around us is to develop formal terminology (an ontology) which allows an unambiguous description of concepts, relationships between concepts and actions on these concepts and which supports semantic interoperability (ability of communicating entities to share unambiguous meaning).

### 1.2 Ontologies and data sharing in the health sector

In the health domain SNOMED CT<sup>5</sup> – or the Systematized Nomenclature of Medicine Clinical Terms – has attempted to do just that. SNOMED CT is an example of an ontology developed for healthcare which provides the core general terminology for an electronic health record and contains more than 311,000 active concepts with unique meanings with formal logic-based definitions organized into hierarchies. When integrated into software applications, SNOMED CT can be used to represent clinically relevant information consistently, reliably and comprehensively as an integral part of producing electronic health records.

Patients benefit from the use of SNOMED CT because it improves the recording of electronic health record information and facilitates better communication, leading to improvements in the quality of care. The healthcare system benefits because it increases the accuracy of information flow and presents unambiguous information in a machine readable format.

This unambiguous, machine readable information represented in SNOMED CT can then be used as input to formal logic and reasoning tools to assist hospitals with workflow and patient scheduling; to assist doctors by identifying known drug-interactions; and to assist patients by taking much of the complexity out of managing a personally controlled electronic health record (see the Australian e-Health Research Centre's [AeHRC] clinical terminology tools for examples).<sup>6</sup>

As the level of sophistication of tools that rely on ontologies such as SNOMED CT grow, more and more value-added processing can be done at machine level. Linking in additional high value information such as patient scans or patient history opens the way for much higher value outcomes such as disease grading or helping to select a treatment regime by examining success rates for different treatment alternatives. None of this removes the need for the GP or the specialist, rather it paves the way for much better informed decision making, reduces errors, automates lower level decisions and drives productivity. The technology factors that underpin the productivity gain are the widespread uptake of electronic health records that rely on a formal ontology, and the ability to exchange data between different sectors of the healthcare system in an appropriate form. The non-technical factors standing in the way of uptake are many, however perhaps the largest is aligning the myriad of financial incentives in the healthcare system, addressing concerns about patient data privacy, and building confidence in new ways of doing things.

### 1.3 Ontologies and data sharing in the legal sector

Apart from health, ontologies exist for many domains; for unambiguously describing soil, water, sensor networks and for the study of protein crystallisation as examples. They also exist for the legal profession,<sup>7</sup> although, they are not taken into as widespread use as in the healthcare sector.

Just as in health, the opportunity exists to map legal concepts and relationships into a machine-readable format, which can then be used as input to formal logic and reasoning tools to assist with case scheduling and workflow, electronic sorting and evaluation of relevance of applicable case law, and enhancing the effectiveness of electronic discovery, evidence collation and evaluation.<sup>8</sup>

Electronic discovery is one of the emerging areas using ICT in law. The term refers to the process by which electronic data is sought, located, secured, and searched with the aim of using it as evidence in a civil or criminal legal case. The nature of digital data makes it well-suited to investigation. Digital data can be readily searched using electronic means, whereas paper documents must be examined and evaluated manually.

The productivity drivers highlighted for healthcare are readily transferrable to the legal domain yet will remain fundamentally limited by the ability to share data in an appropriate manner, and widespread use of formally defined ontology that describes the domain.

As an example of a program that is working to share data, the NSW Government commenced a Joined Up Justice project which facilitates the exchange of data between the courts and major participants in the criminal justice system using a sector wide Common Information Model. It provides interfaces with justice agencies, including Corrective Services NSW, Legal Aid NSW, the Office of the Director of Public Prosecutions, and other justice system partners.<sup>9</sup> The system enables direct electronic data exchange between the courts and Juvenile Justice NSW, the NSW Police Force and the Bureau of Crime Statistics and Research. Such a system provides one of the essential components for technology driven productivity gains.

## 2. Existing impediments to introduce reforms

### 2.1 Telework, telepresence and telehealth – the National Digital Economy Strategy

In May 2011 the Australian Government announced the National Digital Economy Strategy, which outlined how the National Broadband Network (NBN) may help Australia become a leading global digital economy by 2020.<sup>10</sup> To measure progress in realising its vision for 2020, the Australian Government set eight goals including for telework and telehealth:

By 2020, the level of telework in Australia will have doubled so that at least 12 per cent of employees will have a formal telework arrangement.

As identified in the National eHealth Strategy endorsed by the federal, state and territory governments, 90 per cent of high priority consumers such as older Australians, mothers and babies and those with a chronic disease, or their carers, can access individual electronic health records. Through the Australian Government's investments in telehealth, by July 2015, 495,000 telehealth consultations will have been delivered providing remote access to specialists for patients in rural, remote and outer metropolitan areas, and by 2020, 25 per cent of all specialists will be participating in delivering telehealth consultations to remote patients.

The 2012 IBIS world report<sup>11</sup> stated that “if 10 per cent of Australian employees were to telework 50 per cent of the time, the total annual gains to the Australian economy would be of the order of \$1.4 to \$1.9 billion and that by 2020, the workplace participation impacts of NBN enabled telework could grow the annual GDP by \$3.2 billion, and create the equivalent of an additional 25,000 full time jobs. Telework can elicit significant benefits when implemented successfully”.

The productivity gains associated with ‘tele’ in telework, tele-health, tele-education and in many other services sectors, requires overcoming challenges of integrating electronic systems (documents, files), data security, data privacy and being able to unambiguously authenticate online. It also requires the ability to be able to charge for (or be paid for) the delivery of a service electronically when we have traditionally expected such a service be delivered in person. In the health and legal services sectors, the patient or client experience is also critically important. A level of trust and a sense of confidentiality is required in dealing with the service provider. Under circumstances where the patient or client is in difficult circumstances such as a hospital bed or in confinement, delivery of a meaningful tele-presence experience is even more challenging.

### 2.2 Telehealth pilots

In January 2012, the Federal Department of Health and Ageing and the Department of Broadband, Communications and the Digital Economy, announced a fund for NBN Enabled Telehealth Pilots Program. The program provides funding for pilot projects to develop and deliver telehealth services to NBN-enabled homes with a focus on aged, palliative or cancer care services, including advance care planning services. Projects within the program are expected to investigate and demonstrate opportunities for the extension of telehealth services in the future and the business case for doing so by developing and trialling services that demonstrate how:

- Telehealth services can be delivered to the home in new and innovative ways, enabled by high-speed broadband;
- Health services can become more accessible, in regional, rural, remote and outer metropolitan areas;
- Health-related transport needs can be reduced;
- Consumers can collaborate and communicate with their carers and health service providers to improve quality of care and health outcomes;
- Unnecessary hospitalisations may be reduced;
- Telehealth services are scalable and able to provide an increased volume of care without a corresponding increased cost;
- Location dependent or regional health workforce skills shortages may be mitigated;
- Use of the infrastructure may increase healthcare access and reduce social isolation; and
- Communication during health emergencies could be improved

The telehealth pilots will provide services to around 2500 patients in over 50 NBN rollout sites across Australia by June 2015. This delivers value in its own right, but is a long way short of the target that by *“July 2015, 495,000 telehealth consultations will have been delivered”*. To reach the scale needed to meet our first digital economy target and to have real impact on the cost of delivering services, some major challenges need to be addressed.

The long history of broadband trials in Australia has shown the value of telehealth to the hospital and to the home. The long running Virtual Critical Care Unit (ViCCU) trial which connected Nepean and Katoomba hospitals in NSW showed that the major enablers were the availability of low-cost, high speed broadband and a system designed around clinical requirements. In 2005 the low-cost broadband was not available. Today, the increased rollout of broadband should address that issue.

A great deal of research has now been done<sup>12,13</sup> to understand how to develop the systems around the doctor and around the patient, rather than the other way around. However, many of clinical lessons learnt from ViCCU have been transferred to other projects and demonstrations. ViCCU was the starting point for EchoNet that enabled real-time remote echocardiography. ViCCU has also led to the Loddon Mallee virtual critical care project – Victu – which was supported under the Federal Government’s Clever Networks Program.

### 2.3 Telework in the legal sector

In 2009 the NSW Government undertook the establishment of JusticeLink one of the first integrated, multi-jurisdictional electronic case management systems in the common law world. The implementation of JusticeLink connects civil and criminal jurisdictions in the NSW Supreme, District and Local Courts with the objective of significantly reducing the need for face-to-face enquiries by allowing parties to electronically register cases, lodge court documents, schedule and list matters and record outcomes. Delivering court services in this way is intended to streamline court processes and allow files and data to be transferred securely and seamlessly between the court, the registry and other jurisdictions reducing cost and increasing the ability for litigants and their representatives to access the courts.

The JusticeLink system provides a platform for further technological developments and refinements over many years to come. Projects such as Joined Up Justice and Legal eServices will build on the functionality of the JusticeLink system. The 2012 Report on Government Services includes comments from the NSW Government:

NSW continues to utilise technology in the court system to improve its quality of services. In 2010–11 over 60,000 videoconferencing sessions were held, and \$1.2 million was invested in the update of remote witness facilities. The NSW Courts Service Centre answered over 74,000 calls in its first six months of operation. Redirecting enquiries away from registries allows registry staff to focus on providing face-to-face counter service and courtroom support. Legal eServices continues to provide a service for the electronic submission of documents. In future, anyone in the community will be able to electronically lodge documents with the NSW Courts. Legal eServices will also allow a number of processes to be available online, such as online tracking of cases. Online searchable court lists were launched in April 2011, providing online access to current court listings for the NSW Supreme, District and Local Courts. The online service is a great success, with over 2200 inquiries in the first three months.

The Federal Court has also introduced an eCourtroom<sup>14</sup>, an online courtroom used by judges and registrars to assist with the management and hearing of some matters before the Federal Court of Australia or Federal Circuit Court of Australia. eCourtroom is integrated with eLodgment, providing parties with a link between eCourtroom and eLodgment to facilitate the electronic filing of documents. eCourtroom also provides parties with a facility to exchange correspondence and draft documents through the related eCase administration application. Additionally, a transcript facility provides a record of all messages posted by the presiding judicial officer and the parties in any matter that is conducted on eCourtroom. This transcript is viewable by all parties as well as the public.

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### 3. The broader social and economic potential that could result from embracing technological developments

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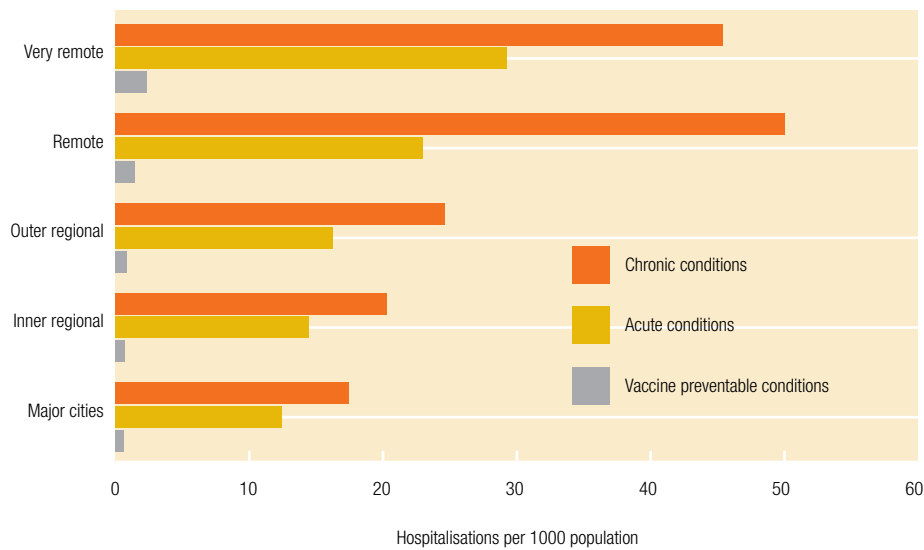
#### 3.1 Changing the paradigm in health delivery

The health system we have today was designed for an earlier era, and is poorly equipped to meet new demands. It is struggling with escalating challenges in health service delivery, staff shortages as our workforce ages, a changing case mix and an identified productivity gap of around 20 per cent. Many rural and regional areas are also under-served, with limited access to appropriate care resulting in higher hospitalisation rates and poorer health outcomes.

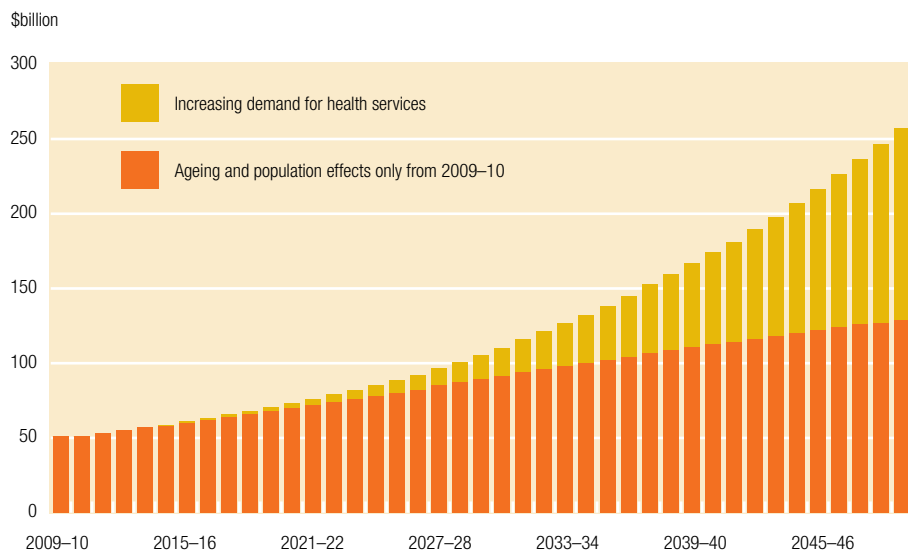
People living in remote regions of Australia experience far poorer health outcomes than those in regional and urban areas. The gaps in health service availability and outcomes between people in urban areas and those in remote parts of our country are well known.<sup>15</sup> Telehealth, the provision of health-related services at a distance using technology assisted communications, offers a means to narrow this gap by improving the level and diversity of services in remote areas.

Digital health information systems and technologies, broadband communications and big data analytics are all areas that can help provide cost-effective services in our health system, offering better access, greater efficiency and higher quality healthcare.

**FIGURE 2**  
**ADMISSIONS PER 1000 POPULATION, BY PLACE OF RESIDENCE 2007–08**



**FIGURE 3**  
**TOTAL AUSTRALIAN GOVERNMENT HEALTH EXPENDITURE WITH AND WITHOUT NON-DEMOGRAPHIC GROWTH (2009–10 DOLLARS)**



Telehealth services made possible by the roll-out of broadband services across Australia can deliver many health services especially into remote communities, reducing the need for travel; providing timely access to services and specialists; improving the ability to identify developing conditions and providing a means to educate, train and support remote healthcare workers.

Telehealth services can also reduce the burden on our health system by helping hospital 'frequent flyers' such as chronic disease sufferers or the elderly, which accounted for over 70 per cent of Australia's \$103.6 billion health expenditure during 2007–08, to manage their conditions from home.

Acute hospital care is the largest element in the Australian health budget. In 2009–10, our public hospital system consumed \$36 billion, or 31 per cent of total health spending. This is also where costs are rising the fastest, and the focus of our research.



### The long term view – wellness management

However, the ultimate goal remains moving people from sick people being managed in the healthcare system, to individuals largely managing their own health in the ‘wellness industry’. Many of the factors that impact our risk of developing chronic disease are related to diet, exercise and lifestyle. By empowering people to more effectively manage their own health with a focus on minimising the risk factors associated with disease, we will fundamentally transform the productivity of the healthcare sector and positively impact people’s lives. Part of the answer is providing reliable, real-time and personalised information to people in an understandable manner which allows them to take meaningful steps to avoid disease.

### 3.2 The potential for the legal sector

In many ways, the legal or justice sector represents an opportunity for change. Like many other sectors, this sector has benefited from the general intensification of use of information and communications technologies. However, little research has been done on how the sector could be transformed in ways similar to how telecommunications, retail and entertainment have been, or as health has the potential to be.

Initiatives such as JusticeLink and the Federal Court’s eCourtroom point the way to what is possible. However, real productivity gains will come from the ability and willingness to share data, from use of formal logic tools and establishing a stable, commonly accepted platform for higher order innovation. The rapid developments that have been achieved in telepresence, the increased sophistication in collating sources of information to drive better decision-making, and the ability to harness automation in ever more complex areas will allow the sector to transform the way services are delivered in years to come.

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## 4. Closing words

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A successful digital economy is essential for Australia’s economic growth and to maintain our international standing. Addressing opportunities opened up by broadband communications will be critical in an era of rising health costs and the budgetary challenges driven by an ageing population, pressures on the infrastructure and logistics sectors, and public expectations of governments. Innovation in the services sector built on a broadband infrastructure and other technology will drive productivity improvement across the services economy.

Australia remains a lucky country and there is much to be optimistic about in the future. A focus on services innovation, in particular services in the digital economy, will help to show what is possible in a more prosperous and more personalised future.

*Thanks to Sarah Dods and Alan Dormer from CSIRO and Therese Catanzariti, Barrister, for providing input for this article.*

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SECTION

4.0

# Capability and workforce development

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## 4.1

# Key trends in Australia's workforce

## Philip Bullock



Philip Bullock is currently the Chair of the Australian Workforce and Productivity Agency (formerly Skills Australia). He has more than 25 years' experience working with IBM, culminating in his appointment as Vice President, Systems and Technology Group IBM Asia Pacific Region based in Shanghai. Prior to this Philip was CEO of IBM Australia and New Zealand.

Philip also served on the board of the Australian Information Industry Association, the Business Council of Australia, (where he also chaired their Skills and Innovation Taskforce), the Victorian Schools Innovation Commission and the Advisory Committee to the Australian Graduate School of Management.

He is currently a non-executive director of Perpetual and CSG. He was previously a non-executive director of Healthscope. Philip also serves on the Federal Government's Education Investment Fund and the Australia India Education Council.

When he first described Australia as ‘the lucky country’, Donald Horne wasn’t referring favourably to our climate, lifestyle and prosperity. Rather, he was decrying the fact that Australia’s fortune was derived from the innovation of others.<sup>1</sup> Since Horne first used the term, the lucky country has undergone a change in value from negative to positive in popular usage. If we are to remain the lucky country in the popular sense of the term, we need to raise national productivity. We need to foster more home-grown innovation, especially in the product and process improvement that happens in the workplace. The growth of the service industries, a trend predicted to continue through the decades ahead, requires a focus on workforce development to build the human capital we need to address productivity issues. The quality of our leadership and management will play a critical role here.

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## A transformation in employment, industry structure and qualification profiles

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Australia has undergone a profound shift in recent decades, with a workforce transformed by changes in industry, demography and educational attainment. Thirty years ago, almost a quarter of all employed Australians worked in manufacturing or agriculture.<sup>2</sup> Today, just over one in 10 people work in these sectors, while employment in professional, scientific and technical services, and healthcare and social assistance has increased significantly.<sup>3</sup>

Australians are also more educated than ever before and are increasingly likely to be employed in providing services than in producing goods. At the start of the 1980s, just one third of the Australian workforce held post-school qualifications and only seven per cent held a bachelor degree or higher qualification.<sup>4</sup> Now, the majority of workers (65 per cent) have post-school qualifications and more than a quarter hold a bachelor or higher degree.<sup>5</sup>

Yet it is not all good news. While Australia’s unemployment rate has been at historically low levels for more than a decade, coming in at under six per cent since mid-2003,<sup>6</sup> participation in work remains a challenge for many people. Women’s participation in the labour force has never been higher, but there remains a large gap between female participation (at 59 per cent) and male participation (at 72 per cent), even as male participation has fallen from nearly 80 per cent since the late 1970s.<sup>7</sup>

The changing occupational and industrial composition of the workforce means that work opportunities and patterns of participation have also changed over time. The demand for high-level skills has been evident in the growth of professional and managerial occupations in Australia, while we have seen the closing off of many low-skilled job roles over the past 30 years.

The restructuring of the economy in the 1970s and early 1980s saw a rapid decline in blue collar work as a share of male employment, with a fall in the number and availability of jobs in production industries in favour of the services industries. This drop in participation of males of prime working age (25 to 54) is largely confined to those with no post-school qualifications.<sup>8</sup> However, this pattern of declining participation is not true for women, with the participation of women with no post-school qualifications rising from under 50 per cent in 1981 to nearly 70 per cent in 2006.<sup>9</sup>

This implies that a lack of qualifications is not such a barrier for women as it is for men, given the rise of jobs in female-dominated service sectors and the loss of traditionally masculine low-skilled jobs associated with production sectors. The growth in part-time

and casual jobs also provides opportunities for female participation in the labour force, with nearly half of all working women (46 per cent) currently working part-time.<sup>10</sup>

Gender segregation within industries has a marked impact on the patterns of participation of both men and women. Service industries such as healthcare and social assistance; education and training; accommodation and food services; retail; and financial and insurance services are the most female-dominated sectors, with women accounting for between 52 per cent of the workforce (in the case of financial and insurance services) and 80 per cent (for healthcare and social assistance). Conversely, men comprise the vast majority of workers in construction (88 per cent), mining (86 per cent) and electricity, gas, water and waste services (79 per cent).<sup>11</sup>

However, notwithstanding these changing job opportunities and skill demands in male-dominated industries and industry growth in some female-dominated industries, low skills are increasingly detrimental to individual outcomes. Unemployment affects unskilled workers much more than skilled workers<sup>12</sup> and workers with low skills are also vulnerable to churn between employment and unemployment.<sup>13</sup>

As Australia's workforce becomes ever more educated, low skills increasingly pose barriers to participation and job security. Nearly nine out of 10 people of working age with a post-school qualification (87 per cent) are in the labour force, compared to fewer than seven in 10 (69 per cent) without one.<sup>14</sup> Early school leavers without subsequent post-school qualifications (such as those acquired through vocational learning and apprenticeships) are particularly vulnerable. Nearly 40 per cent of people who completed Year 10 or below and who do not have post-school qualifications are not in the labour force, and an additional 10 per cent are unemployed.<sup>15</sup>

Maintaining skills currency is an issue for Australia's ageing workforce. Many mature-aged workers have a depth of experience in the workforce but lower levels of formal qualifications than new entrants to the labour market. Yet older Australians are participating in work at increasing rates, with more than half of 60–64 year-olds currently in the labour force, increasing from one third in 1991.<sup>16</sup> Participation has also increased for people aged 65 and over, with more than one in 10 now in the labour force.<sup>17</sup> This means that age should not pose a barrier for skills development.

Regional clusters of low skills are of particular concern in the case of young people, with outcomes for youth in both education and work highly influenced by where young people live. While more young people are staying on at school and gaining post-school qualifications, this is not true for all. There is low school retention and high rates of youth unemployment in areas such as Sydney's west, Melbourne's north and north-west, Adelaide's north and regions such as Queensland's Sunshine Coast. Youth unemployment is also high in other tourism areas such as New South Wales' central and north coasts, indicating that industry demand is not the only factor that needs to be considered in influencing labour market outcomes.

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## Future demand for skills

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Structural adjustment, new occupations and changing expectations of employers and employees mean that demand for skills will continue to change over time. The Australian Workforce and Productivity Agency (AWPA) has attempted to gauge the breadth and depth of this change by adopting a scenario approach to modelling the projected future demand for skills.<sup>18</sup> The suite of four scenarios – The Long Boom, Smart Recovery, Terms of Trade Shock and Ring of Fire – present possible, plausible futures for Australia to 2025.



Modelling against the four scenarios shows that, regardless of whether Australia faces an open, high-growth economic future or a protectionist, low growth one, some things are relatively certain. Among these are the importance of Asia, new markets, globalisation and emerging technologies (including increasing rates of digitisation) as drivers of change and contributors to our innovative, collaborative and adaptive capacity. In particular, globalisation and the international economy will continue to exert a profound influence on the demand for high level skills to 2025.

Demographic influences such as Australia's ageing population will continue to impact industry and occupational trends over the coming decades. Employment in healthcare and social assistance is expected to grow by between 643,800 and 798,600 people to 2025 under the three higher growth scenarios, representing an expansion of between 47 and 58 per cent on current employment levels in this sector. This is matched by projected growth in professional, scientific and technical services, with an additional 353,900 to 583,000 people employed to 2025; and by education and training, which is expected to increase between 462,600 and 503,700.<sup>19</sup> By 2025, employment in these three service industries alone will account for around 35 per cent of all jobs in Australia, compared to just over a quarter of jobs as at February 2013, and 19 per cent in the early 1980s.<sup>20</sup>

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## The services sector and productivity

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It comes as little surprise that three service industries are predicted to have such significant employment growth. Since the 1960s Australia has seen an increasing share of services in the economy.<sup>21</sup> Despite recent contractions in the sector,<sup>22</sup> Australia remains one of the most service-intensive countries in the developed world.<sup>23</sup> The services sector as a whole currently employs 86 per cent of the Australian workforce,<sup>24</sup> comprises 84 per cent of Australian businesses,<sup>25</sup> and is estimated to account for two thirds of Australia's GDP.<sup>26</sup>

Australia's economic prosperity over the last 20 years has been widely attributed to favourable terms of trade and capital investment flowing from the resources sector. Yet in the shadow of the boom, Australia has experienced a steady decline in both labour and multifactor productivity.<sup>27</sup> Though we may see a bounce in productivity as increased outputs are realised from recent mining investment,<sup>28</sup> a decline in resources demand is foreseeable as other sources come online and developing economies restructure. Australian resources will become less economically viable to extract. Conversely, demand for goods and services – particularly by the growing Asian middle class – will increase.<sup>29</sup> As a consequence, in the future we will be looking to other industry sectors to drive Australia's prosperity.

The contribution of the services sector to Australia's GDP reflects the size of the sector rather than a measure of its productivity. It has been estimated that a small increase of 0.1 per cent in services sector productivity would produce a sustained annual increase of over \$1 billion to Australia's GDP. However, productivity is difficult to measure in the services sector given the intangible nature of many services sector outputs.<sup>30</sup> Official productivity statistics fail to capture a large section of the economy, including two of the predicted growth industries (health and education services), by omitting the 'non-market sector'.<sup>31</sup> When comparisons including these industries are made they fall in the lower end of the productivity spectrum.<sup>32</sup>

Whether it is a matter of low productivity in these and other services sector industries or a failure to adequately measure productivity in the sector, the global services market



presents a major area for future growth in the Australian economy. The Australian Government is already actively working to promote Australia's service exports through the World Trade Organization and expanding access to our services through the development of free trade agreements. Two of the growth industries (education and professional services) have been identified as priority sectors.<sup>33</sup>

While governments can influence productivity growth through policies that foster an environment conducive to improvement, productivity is largely driven by employers and workplaces.<sup>34</sup> Unlike the 1980s and 1990s, where technological innovation and macroeconomic reform led to increased productivity,<sup>35</sup> technology is expected to have less of an impact on productivity as we head towards 2025.<sup>36</sup> Technology innovation such as high speed internet, nanotechnology and biotechnology will continue to shape the way we live and work.<sup>37</sup> However more than three quarters of our workplaces rely on people delivering services rather than goods, and the majority of innovation is incremental (small modification to existing products) rather than radical (major changes replacing existing products).<sup>38</sup> This means that a more critical factor to improving productivity in Australia will be improving our human capital.

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## Building human capital through workforce development

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Enhancing the human capital embodied in our workforce is essential if Australia is to maximise opportunities in the years to 2025 and avoid stalling productivity through skills shortages. Human capital has been strongly linked with productivity for individuals, employers and the national economy.<sup>39</sup> Ensuring there are sufficient higher level skills in the workforce will enable us to create a knowledge economy as well as respond to the challenges of the future. Helping Australians with lower level skills to develop their skills will also be critical, especially for those on the margins of the workforce.

The role of human capital in growing productivity is especially important in the services sector where productivity improvements are largely dependent on an individual's skills rather than improvements in the processes of production.<sup>40</sup> There is some evidence that the use of high-skilled labour is positively associated with multi-factor productivity growth in industries that make intensive use of university graduates. This is particularly relevant to the services sector which is estimated to employ 93 per cent of our university graduates.<sup>41</sup> Further, there is an important association between learning and productivity, with studies suggesting an increase in average education level by one year is likely to result in three to 15 per cent growth in GDP per capita.<sup>42</sup>

The link between innovation, productivity and skills has been described as a 'virtuous circle', with each element positively reinforcing the others.<sup>43</sup> Investment in learning and training is only realised when it translates into workplaces using these skills in adaptive, intelligent and effective ways. It is people who have the skills and take the time to train. It is the workplace that must draw these skills out, build upon them and use them to drive the productivity and innovation of the business and the nation. This shifts the focus to workforce development.

Workforce development can be defined as 'those policies and practices which support people to participate effectively in the workforce and to develop and apply skills in a workplace context, where learning translates into positive outcomes for enterprises, the wider community and for individuals throughout their working lives'.<sup>44</sup> A workforce development approach can be applied at the training provider, regional, industry and

national level and as with productivity improvement, its main site is the workplace which is predominantly the responsibility of employers, their employees and unions. The innovation that takes place in Australian workplaces every day is critical to unlocking the nation's productive potential.

One of the cultural challenges that we face in Australia as a liberal market economy is that we are seeking to achieve change in employer behaviour on issues that many other countries would respond to through regulation. Government has a limited role in influencing change at the workplace level and has traditionally found it easier to make supply-side changes to the training system.<sup>45</sup>

The National Workforce Development Fund, established in 2012, is an industry demand-led program that aims to help businesses identify their current and future workforce development needs. Through the fund, organisations can apply for partial funding to support the training of existing workers and new workers in areas of skill shortage. The fund is in its early days but is showing high completion rates and employer satisfaction with training. Elements of the fund that contribute to these outcomes are the employer's financial stake in the training and their ability to nominate a training provider. From 1 July 2012, over 29,000 learners have been supported by the fund.

Better use of employee skills, or 'skills utilisation', is a core component of workforce development in enterprises. Employers can foster the 'use of better skills' by providing training in a context that offers opportunities for newly acquired skills to be used, or they can make 'better use of existing skills' by unlocking skills and talents, for example through changes to work organisation.<sup>46</sup> Ability, motivation and opportunity are all required to improve skills utilisation.<sup>47</sup>

The business benefits of improved skills utilisation include improvements to profitability, innovation, productivity and retention. There is also a positive impact on employee motivation and job satisfaction.<sup>48</sup> Yet despite the benefits there is little evidence of the extent to which skills utilisation strategies are adopted in Australian workplaces. What we do know is that around 37 per cent of employers report that existing skills are underutilised.<sup>49</sup> An analysis of four different measures of employee reporting of skills underutilisation concluded that the rate is between 10 and 15 per cent.<sup>50</sup>

Maximising skills utilisation in enterprises requires a major change in the approach to workforce development. While integrated programs and funding are available through the Australian Government's Skills Connect program to promote and facilitate enterprise workforce development, including the industry demand-led Workplace English Language and Literacy program, there is still room for better coordination of effort to promote workforce development to industry at all levels of government. The National Workforce Development Fund requirement for a workforce development plan expands the 'nudge factor' for industry from training alone to other firm-level workforce development strategies including skills utilisation and possibly organisational and job design. AWPA supports expansion of this program.

Potential measures used to encourage employers to access training and skills development include the provision of funding for assistance with workforce development activities such as job redesign, human resource policies, training plans and workforce planning tools.<sup>51</sup> These levers are particularly important in the case of small to medium enterprises (SMEs), which, compared to larger organisations, are much less likely to have the support of human resources or other corporate services for workforce development activities. Yet SMEs are critical to industry development and employ around half of the Australian workforce.

AWPA recommends that the Australian Government explore joint funding between Enterprise Connect and Skills Connect (including the National Workforce Development Fund) to achieve greater alignment of business improvement and skills programs to support workforce development for small and medium enterprises. Finally, AWPA recommends extending funding of Enterprise Connect services to labour-intensive industries such as retail and hospitality so that business improvement services are more readily available to SMEs in these industries.<sup>52</sup>

Leaders and managers play a key role in improving skills use. In workplaces that are effectively using the skills of their workforce, leaders and managers support efforts to optimise skills utilisation and recognise the need for action. Workplaces with effective leaders and managers are generally more efficient and innovative, and are rewarded with greater financial returns.<sup>53</sup> Looking forward there will be an increasing demand for managers, including front-line managers. It is important to ensure they have the right skills to foster high-performing workplaces and better use of skills. We need to ensure that Australia has the management capability needed to meet our potential. In *Future Focus*, AWPA recommends that the Australian Government commission a comprehensive review of leadership and management, including front-line management.<sup>54</sup> The Centre for Workplace Leadership could be the body to take this up.

Research on high-performing workplaces has revealed a positive correlation between leadership, culture and management practices and workplace productivity and profitability. A significant study of the services sector has demonstrated that high-performing workplaces have profit margins almost three times higher than low-performing workplaces. Furthermore, for every \$1 of investment made, these workplaces generated 12 cents more in revenue than low-performing workplaces.<sup>55</sup> High-performing workplaces apply a multidimensional approach to performance. In addition to considering conventional indicators such as financial gain in their definition of performance, these workplaces also consider intangible assets: innovation, leadership, fairness, employee experiences and customer experiences.<sup>56</sup>

Skills and training are also central pillars of productivity in the workplace. While many Australian firms perform well in operations management and the production of goods and services, fewer make the connection with developing their human capital to add value to their organisations.<sup>57</sup> The process of making decisions about training is complex, so it is important to align education and training courses with employers' diverse interests and motivations and to recognise the need for increased employer ownership of skills. Many employers do invest significantly in training, and training and investment levels are higher when informal learning is taken into account.<sup>58</sup> However, more employers need to see skills development and utilisation as an investment rather than a cost.

A strategic, considered approach to national workforce development will help Australia generate a more productive, sustainable and inclusive workforce and economy. This agenda requires a well-coordinated partnership approach between all involved: government, industry, education providers, unions, enterprises and peak bodies. There is broad consensus on the importance of this agenda. In *Future Focus*, AWPA recommends that the Australian Government provide additional funding to cover the expansion of training delivery strategies and wraparound services to support the less advantaged to participate in training and employment. AWPA also recommends that the Australian Government provide co-contribution funding over three years for industry-led initiatives to support employment for men and women in non-traditional occupations in skills shortage areas, and consider significantly upscaling successful approaches to help older workers (45+) to re-enter the workforce, such as Experience+.<sup>59</sup>

There is no single, clear solution to raising Australia's productivity to optimise our national prosperity in the years to 2025. What is certain is that Australia will need a larger, more highly skilled workforce, and that means developing one of our biggest assets – our people. Rather than boosting productivity through radical innovation driven by technology or economic reform, we can be propelled by the incremental innovation originating from our human capital. An economy increasingly reliant on the services delivered by people rather than traditionally quantifiable outputs naturally fits with this approach. To capture this innovation and maximise productivity we need to ensure we not only have a workforce with the necessary skills, but that those skills are used. We need leaders and managers in the workplace capable of making this connection and we need partnerships between employers, industry and government to ensure workforce development is a part of every business.

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## 4.2

# Human capital and economic growth

## Peter Noonan and Andrew Wade



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In his previous role at the Victorian Department of Treasury and Finance, Andrew provided health policy advice. Andrew has also researched social security policy at the Cato Institute, and lectured in education economics at the University of Melbourne. Early in his career, Andrew provided budget policy advice at the New South Wales Treasury.



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## 1. Introduction

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“What are the ‘deep’ institutions that are conducive to sustained economic performance?... Some degree of equal opportunity so that people can invest in human capital formation. In this area, by far the most important component is access to education and an economic structure where positions of importance and authority are open to all comers on the basis of merit.”<sup>1</sup>

“There are of course plenty of ways to improve the functioning of the Australian economy. ... We need better... education and training at all levels... Finally, service sector productivity is all about human capital, which we can enhance through education, training, and migration.”<sup>2</sup>

“The vast bulk of policy documents produced by... government continue to fail to engage with or even cite the vast wealth of management and employee relations research that illuminates many aspects of the interaction between skill usage and productive performance ... Instead, reliance on simple readings of human capital theory is deemed a sufficient basis for analysis and action.”<sup>3</sup>

The previous 30 years has seen significant growth in educational attainment in Australia, with similar growth occurring in industrialised and developing countries. Governments have driven increasing educational attainment, due to an understanding that this is a key contributor to labour productivity, economic growth and social mobility.<sup>4</sup>

Within this context, education and training expenditure, and the acquisition of skills and knowledge, is commonly termed human capital development.

There is however a question about the extent to which increasing levels of educational attainment will translate into labour productivity and economic growth. Indeed, in spite of increased educational attainment over the previous decade, Australia’s labour productivity has grown more slowly than since the mid-1970s.

Part of the explanation for labour productivity growth lagging human capital development is that not all education and training contributes equally to improved skills, labour productivity and economic growth. Likewise, job activities and staff development vary greatly between workplaces, therefore affecting firm and ultimately national productivity.

These issues have been overlooked in policy debates, which have assumed that increased human capital alone is sufficient. For example, when releasing a report in 2012, the then Commonwealth Minister for Education, Peter Garrett indicated that:

“Increasing the Year 12 completion rates to the national target of 90 per cent would increase our workforce productivity rate by 0.6 per cent per year between now and 2040, and lift our GDP by 0.65 per cent.

“If we improve our schools to be competitive with those of world leader Finland, over the life of a child born in 2012, our plan would generate an extra \$3.6 trillion for the national economy.”<sup>5</sup>

This paper reviews the linkages between human capital and economic growth (section two) and then considers Australian policies aimed at improving human capital (section three). Section four analyses the state of human capital in Australia, considering whether current policy is optimising Australia’s human capital development. Finally, section five identifies implications for future education and training policy in Australia, proposing a set of policy actions for consideration.



## 2. Linkages between human capital and economic growth

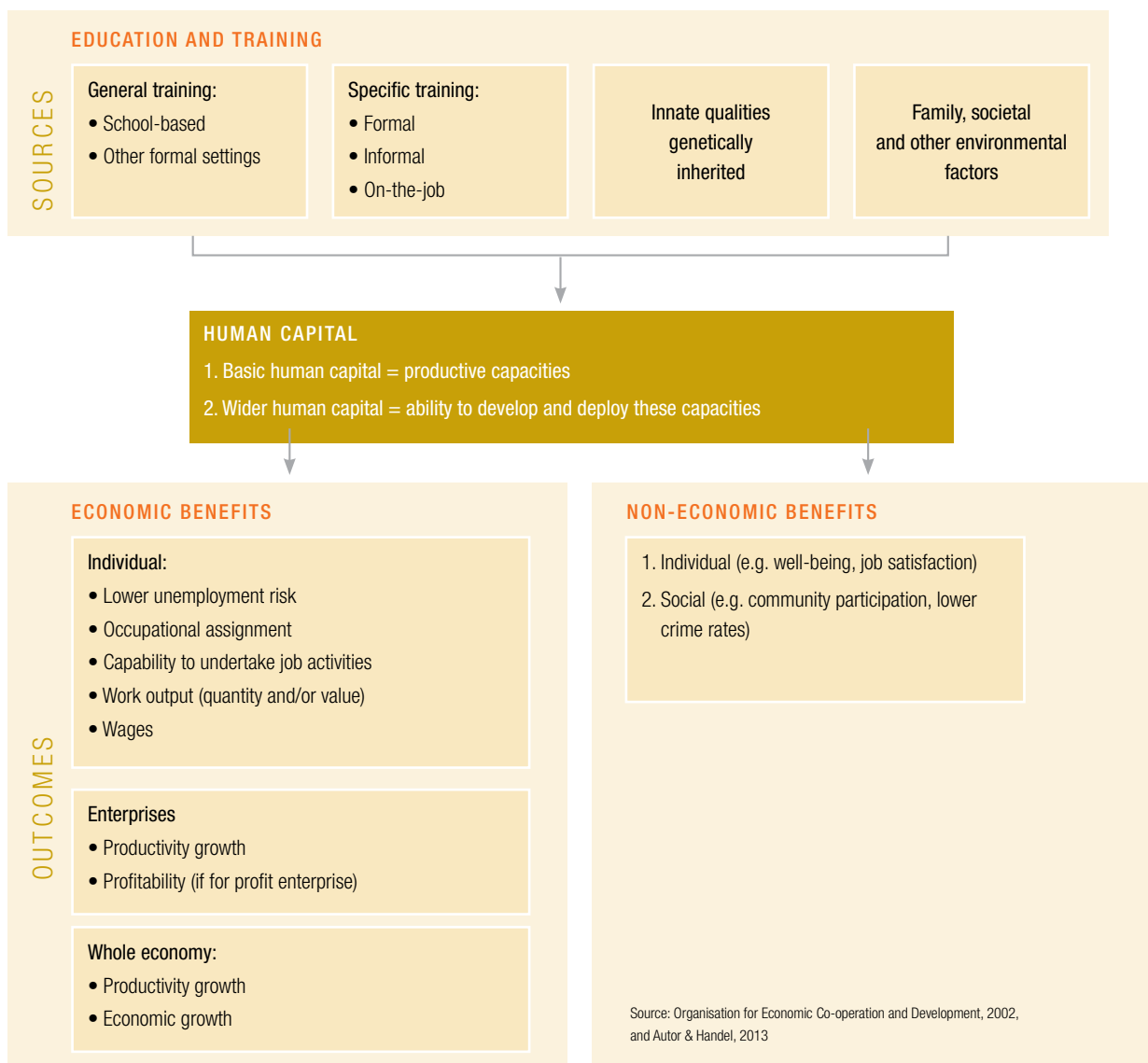
### 2.1 Defining human capital

At first glance, the linkages between human capital and economic growth are self-evident. Individuals undertake education and training to develop skills, which are then deployed in the economy. The deployment of skills generates firm-level productivity, along with national productivity and economic growth (see Figure 1).

Formal education and training is not the only source of human capital. Other sources include informal learning, innate qualities, alongside family and societal environmental factors. These other sources influence how education and training contributes to human capital.

Education and training activities can be categorised as general and specific. Skills provided through general education are applied in multiple occupations and industries, and are typically developed through formal schooling. In contrast, specific training provides the skills required to work in specific occupations and/or industries.

**FIGURE 1**  
**HUMAN CAPITAL: SOURCES, ASPECTS AND OUTCOMES**



Human capital also has non-economic benefits, including wellbeing and lower crime rates although these contributions are not examined in this chapter.<sup>6</sup>

## 2.2 Human capital development: A continual process

Human capital development is not a static activity – it is rather a continual process. An individual's development of *additional* human capital is influenced by human capital developed earlier in life, alongside the opportunities available to them to further develop and apply new skills and knowledge.

This prerequisite for the development of additional human capital is attributable to:

- Self-productivity, whereby skills acquired at one stage in life augment the skills attained at later stages; and
- Dynamic complementarity, whereby previously acquired skills increase returns from future human capital investments. Furthermore, later investments are required for earlier investments to retain their value.<sup>7</sup>

The perspective that human capital developed in early life stages influences future human capital development has implications for education and training policy.<sup>8</sup> For example, it implies that the quantum of education and training required by an individual in secondary school will be dependent, in part, on the extent of human capital development achieved during their primary schooling.

## 2.3 Turning human capital into labour productivity and economic growth

How human capital is deployed determines labour productivity and economic growth. In particular, an individual's human capital is a key determinant of the occupation they are employed in, the job activities they undertake, the quantity and value of these activities, and ultimately their wages. Human capital also contributes towards enterprise productivity growth and profitability, and ultimately economic growth.<sup>9</sup>

An individual's job activities are not just determined by their pre-existing skills and knowledge (i.e. human capital). Rather, enterprise-level factors such as work organisation and job design, the strategic management of human capital, innovation and levels of investment in research and development play critical roles. Realising productivity gains from a more highly skilled workforce is most likely to occur when enterprises are focused on the deployment of human capital.<sup>10</sup>

This suggests that policies aimed at increasing levels of educational attainment need to be set in a broader context of industry and innovation policy, and more importantly, work practices and skills utilisation at the enterprise level where productivity benefits are realised.

The importance of human capital being effectively deployed is highlighted in recent research published by the Productivity Commission which emphasises the important contribution increased labour productivity can make to Gross Domestic Product (GDP) per capita. Based on modelling across three different scenarios, the Commission notes that:

...small sustained differences in labour productivity growth (arising mainly from differences in multi-factor productivity [MFP] growth) can make for large cumulative differences in future prosperity. For example, if national average labour productivity grows at 0.9 per cent per year instead of 1.3 per cent per year, real GDP per person would be around \$13,500 (in 2011–12 dollars) lower by 2050. Raising the rate to 1.8 per cent per year could increase per capita real GDP in 2050 by over \$17,000.<sup>11</sup>

### 3. Australian education and training policy context

#### 3.1 The human capital agenda in Australian education and training policy

The previous two decades has seen a policy focus on human capital in Australia. Starting with significant reforms to university funding in the late 1980s and the development of a national Vocational Education and Training (VET) system, this continued in the 2000s with what has been termed the National Reform Agenda (NRA). Underpinning the NRA was the contention that improvements in educational attainment were required to enhance “workforce participation and productivity, and hence Australia’s future living standards”.<sup>12</sup>

As a result Australian governments have embarked on a range of policy reforms. Reform in areas requiring co-operation between the Commonwealth Government, and state and territory governments, such as schooling and VET has been pursued under the Council of Australian Governments (COAG) Reform Agenda. This process has resulted in the National Education Agreement and the National Agreement for Skills and Workforce Development, along with several National Partnership Agreements.

Separate, to the COAG reform process, the previous Australian Government pursued a range of policy reforms, in response to policy reviews of funding for schooling (the Gonski Review) and higher education (the Bradley Review).

**TABLE 1**  
**RECENT EDUCATION AND TRAINING POLICIES**

Policy initiative	Jurisdiction(s)
<b>Schooling</b>	
National Education Agreement (2008)	All jurisdictions via COAG
National Education Reform Agreement (2013)	Agreement currently between Australian Government and New South Wales, South Australia, Tasmania, Victoria and the Australian Capital Territory <sup>a</sup>
National Partnership Agreement on Literacy and Numeracy (2009)	All jurisdictions via COAG
National Partnership Agreement on Low Socio-Economic Status School Communities (2009)	All jurisdictions via COAG
<b>Vocational Education and Training (VET)</b>	
National Agreement for Skills and Workforce Development (2008 and 2012)	All jurisdictions via COAG
National Partnership Agreement on Skills Reform (2012)	All jurisdictions via COAG
Refocusing Vocational Training in Victoria (2012)	Victoria
Smart and Skilled (2012)	New South Wales
Skills for All (2012)	South Australia
Great skills. Real opportunities (2013)	Queensland
<b>Higher education</b>	
Transforming Australia’s Higher Education System (2009)	Australian Government

<sup>a</sup> As at 11 October 2013.

Source: Council of Australian Governments, 2012, Council of Australian Governments, 2013, Council of Australian Governments, 2008, Council of Australian Governments, 2009, Council of Australian Governments, 2012, Council of Australian Governments, 2012, Victorian Department of Education and Early Childhood Development, 2012, New South Wales Department of Education and Communities, 2012, Government of South Australia, 2012, Queensland Department of Education, Training and Employment, 2013, Australian Department of Education, Employment and Workplace Relations, 2009.

A number of states and territories have implemented significant reforms, most notably in VET. For example, Victoria and Queensland have developed entitlement based funding models for VET, providing eligible students a publicly subsidised place, in a public or private provider of their choosing.

Policies from the previous five years are identified in Table 1, categorised into schooling, VET, and higher education.

### 3.2 Themes in Australian education and training policy

Despite covering three education sectors and multiple jurisdictions, several common themes emerge from the policies detailed in Table 1.

#### Increasing educational attainment

Each of the policies identified in Table 1 focus on increasing educational attainment, with national qualification targets set for:

- School completion rates;
- The proportion of the 15–64 age workforce with at least a Certificate III; and
- The proportion of 25–34 year olds with a degree.

In VET and higher education, increased attainment is being achieved by removing funding caps. In the past, caps led to the imposition, directly or indirectly, of a limit on the number of government funded places.

In the case of VET, funding caps are being progressively replaced across Australia by entitlement-based funding, with eligible students able to enrol in a preferred course, with an approved training provider. In higher education, demand based funding allows principally public universities to enrol as many students as they choose in a course.<sup>13</sup>

This does not mean that every potential student is guaranteed a place; VET and higher education providers may impose their own enrolment limits.

#### Increasing participation and attainment by disadvantaged students

Many of the policies in Table 1 focus on increasing participation and attainment among disadvantaged students.

The focus upon disadvantaged students has been driven by a broader equity agenda. In addition to increased levels of educational attainment being related to employment and wages, there are a number of social benefits, such as improved health and wellbeing.

#### Using funding to influence education and training delivery

Funding mechanisms have been used to influence education and training delivery. For instance, the National Education Reform Agreement provides targeted funding for students and schools with characteristics linked to either lower levels of achievement, or increased delivery costs. This funding is intended to provide additional support to students aimed at improving overall attainment.

Separately, VET financing arrangements are being used to influence student demand and provider delivery. For instance, in Victoria, the Refocusing Vocational Training policy featured significant subsidy rate changes in a number of courses. For example, the subsidy for a Certificate III in Hospitality declined from \$8.66 per hour in 2012, to \$1.50 per hour in 2013. At the same time, fees were deregulated for non-concession

students. Under funding arrangements that commenced in July 2012, the basis for government subsidy rates was not provision cost, but rather an assessment of ‘public value’, that was:

Assessed on the basis of value to the economy (in terms of jobs or productivity) and the extent to which government investment is required to stimulate delivery of, and participation in, this training to meet industry needs.<sup>14</sup>

Subsidy rate movements has led to significant enrolment change. For example, enrolments in the first quarter of 2013 in courses attracting the lowest subsidy rate made up four per cent of total enrolments. Enrolments in the same set of courses in the first quarter of 2012 accounted for 15 per cent of total enrolments.<sup>15</sup> The announcement in 2009 of the introduction of demand-based funding from 2012 resulted in significant growth in undergraduate higher education enrolments.

### **Absence of an overarching policy framework**

In reviewing the policies in Table 1, the lack of an overarching policy framework to guide development of sectoral specific education and training policies becomes apparent. Due to shared or separated policy responsibilities between the Australian Government, and state and territory governments, there has not been a policy review (or policy) in Australia covering all education sectors.

The lack of an overarching policy framework is leading to inconsistencies between sectors. To use the example of funding distribution, the Australian Government is the sole government funder of higher education. Key features of Australian Government funding for higher education funding include demand-based funding, a generous indexation rate, and student contributions varying on the basis of discipline (which can be paid on an income contingent loan basis via HECS HELP). Government subsidies are, in the main, only available for students attending what are known as Table A providers (such as public universities). However, government financial support is available for students wishing to attend other higher education providers, through FEE-HELP.

Similarly, the National Education Reform Agreement introduces wide ranging school funding reform. This reform is underpinned by per-student funding, accompanied by needs-based loadings and indexation. Significant funding contributions are required from state and territory governments to introduce these reforms.

Finally, there are eight different approaches across Australia to the provision of funding for VET. As noted above, subsidy rates, in conjunction with student contributions vary significantly between jurisdictions. Furthermore, indexation for VET has, in recent years, been less generous than that provided for schools and higher education.

In conclusion, there is little commonality in the funding approaches or structures used by the various jurisdictions to fund education. Different indexation rates are used, alongside very different approaches to the provision of funding. And the approaches to determine student and government contributions vary enormously. While an overarching policy framework cannot be expected to resolve all these anomalies, it should at least go some of the way.

## 4. The state of human capital in Australia

This section analyses the state of human capital in Australia, identifying whether current policy is leading to education and training levels that will ultimately optimise Australia's future economic performance.

The extent of the analysis undertaken is limited by the available data. For example, there is no contemporary Australian survey examining, at an enterprise level, how human capital is deployed, managed, and developed.

### 4.1 Qualifications and attainment

A key objective of the National Education Agreement is increasing the proportion of the Australian population that has completed Year 12 or an equivalent qualification. Over the period 2002 to 2012, the percentage of the population aged 20–24 completing Year 12 has increased from 70.6 per cent to 76.3 per cent (see Figure 2). However, the proportion of the Australian population aged 20–24 years of age that has successfully completed Year 12 (or its equivalent), has been stable for the previous six years.

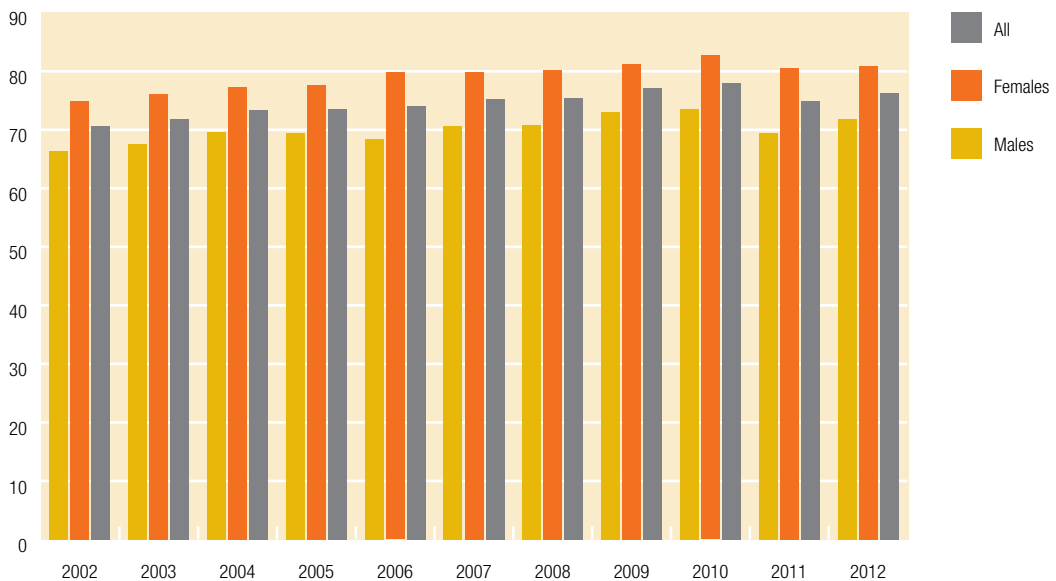
Despite Year 12 completion rates being relatively unchanged in recent years, there has been a significant increase in the number of people enrolling in, and completing, VET qualifications. Figure 3 indicates that enrolments in VET qualifications have increased from around 600,000 in 1996, to reach nearly 1.6 million in 2011.

Over the same period, VET completions have increased from 105,000 to reach nearly 444,000 in 2010. Much of this growth in enrolments and completions has been in Certificate III and IV courses. This growth can be explained, in part, by regulatory requirements calling for staff to have qualifications, such as in child care.

More subdued growth has been experienced in higher education in recent years (see Figure 4). Other jurisdictions are also focusing subsidies in areas of greatest perceived public value.

**FIGURE 2**  
ATTAINMENT OF YEAR 12 OR ITS EQUIVALENT AMONG 20-24 YEAR-OLDS

Per cent of 20–24 year olds with Year 12 (or equivalent)

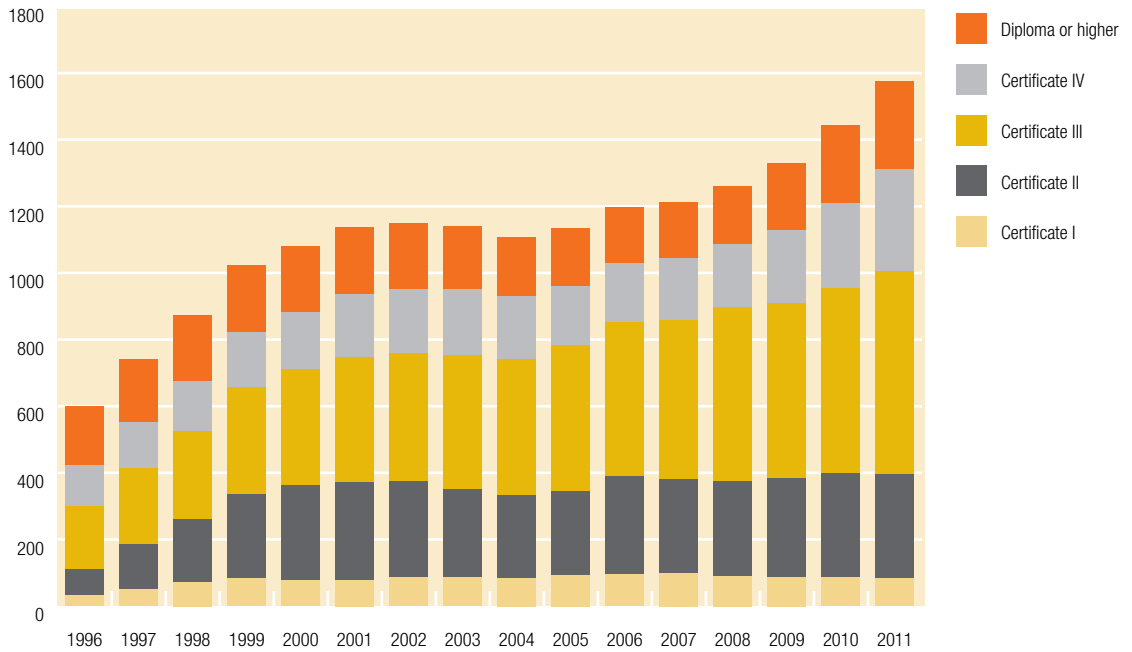


Source: Australian Bureau of Statistics, 2012

**FIGURE 3**  
**VOCATIONAL EDUCATION AND TRAINING: ENROLMENTS AND COMPLETIONS**

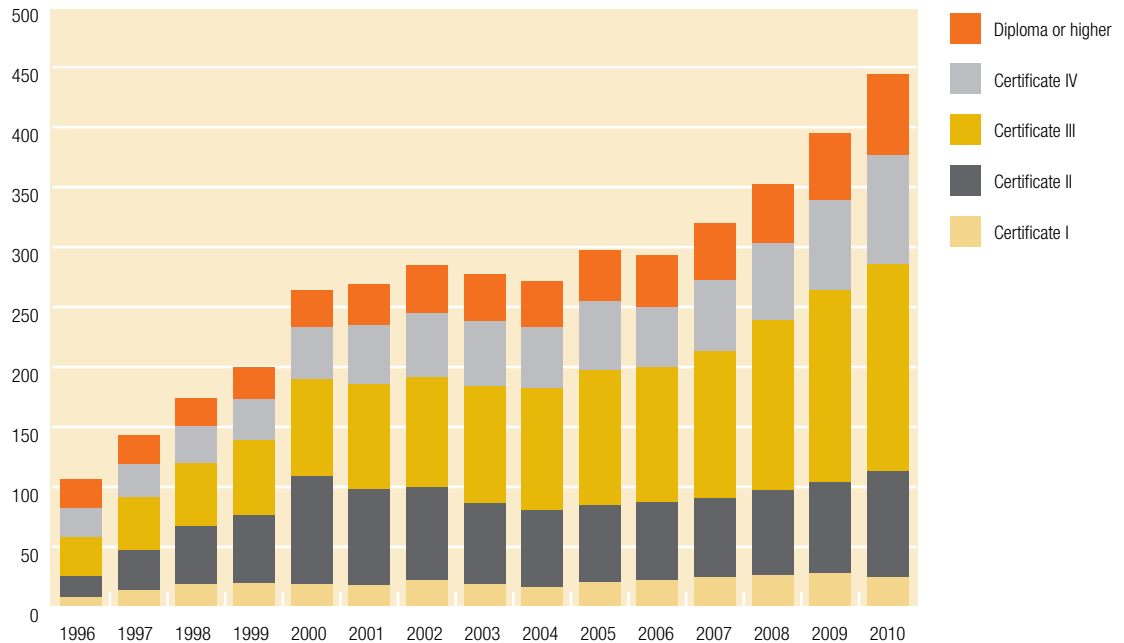
### VET enrolments

Enrolments ('000)



### VET completions

Completions ('000s)



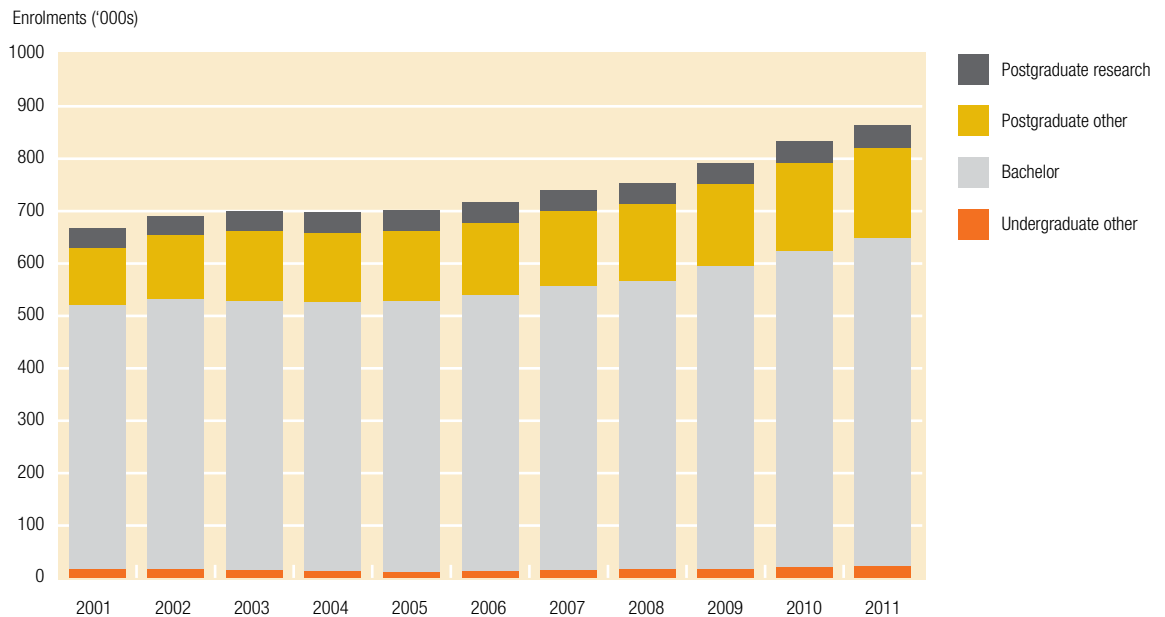
Note: Data represented above only represents VET activity reported to the National Centre for Vocational Education Research (NCVER). VET activity undertaken on a fee-for-service basis by private training providers is not reported to the NCVER. VET activity not contributing towards an AQF qualification (e.g. secondary education, non-award courses) is not included in Figure 3.

Source: National Centre for Vocational Education Research, 2012

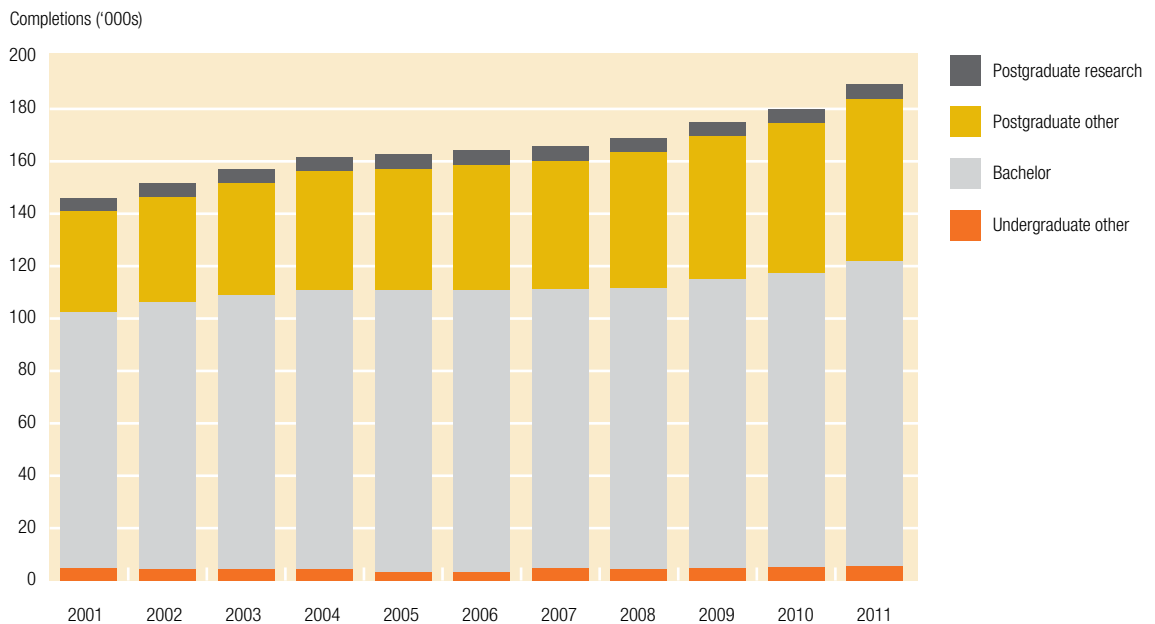


**FIGURE 4**  
**HIGHER EDUCATION: ENROLMENTS AND COMPLETIONS**

### Higher education enrolments



### Higher education completions

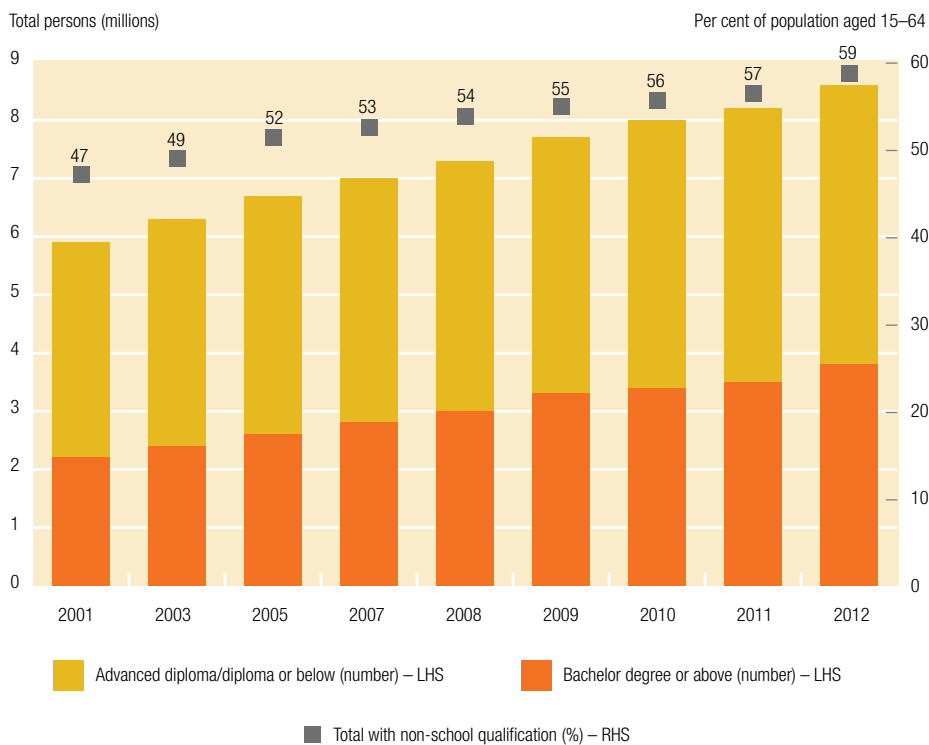


Note: Figure 4 includes domestic students only.

Source: Australian Government Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education

The working age population with either VET or higher education level qualifications has increased markedly as a result of increased attainment of post-school qualifications (see Figure 5). In 2012, 59 per cent of the Australian population aged 15–64 had a post-school qualification, compared to 47 per cent in 2001. Much of this growth has been in higher education qualifications, held by 25 per cent of the population aged 15–64 in 2012, compared to 17 per cent in 2001. However, this growth in higher education attainment has slowed in recent years, hampering achievement of the national target that 40 per cent of 25–34 year olds hold a bachelor degree.

**FIGURE 5**  
**HIGHEST NON SCHOOL QUALIFICATIONS OF POPULATION AGED 15–64 YEARS**



Source: Australian Bureau of Statistics, 2012

## 4.2 Skills and abilities

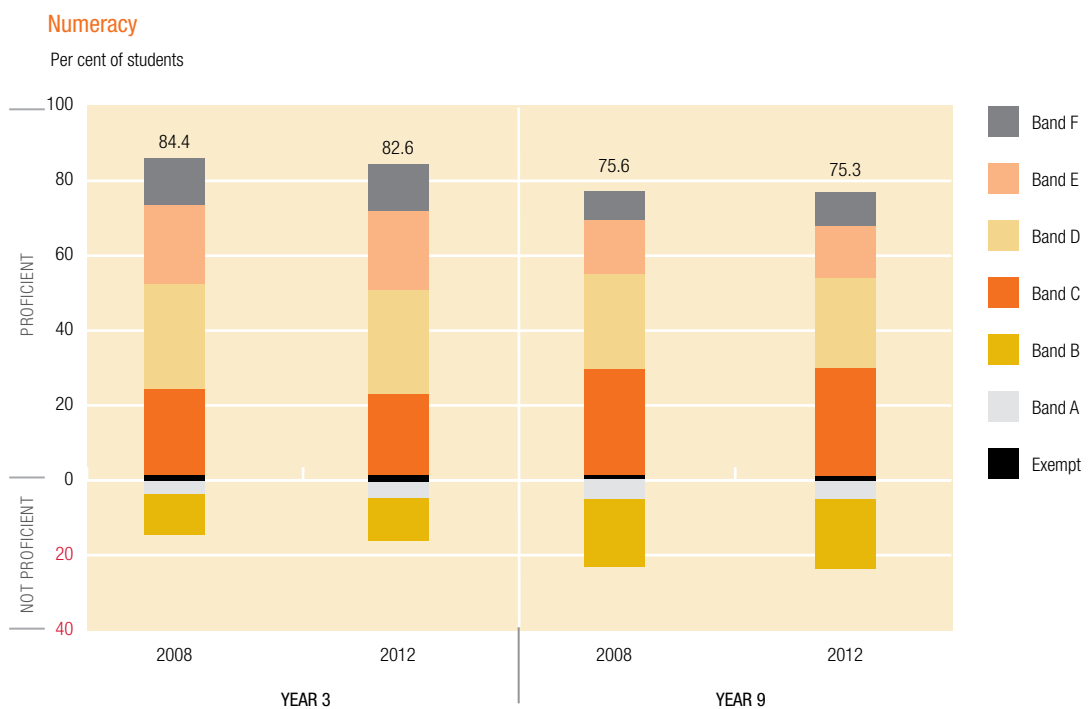
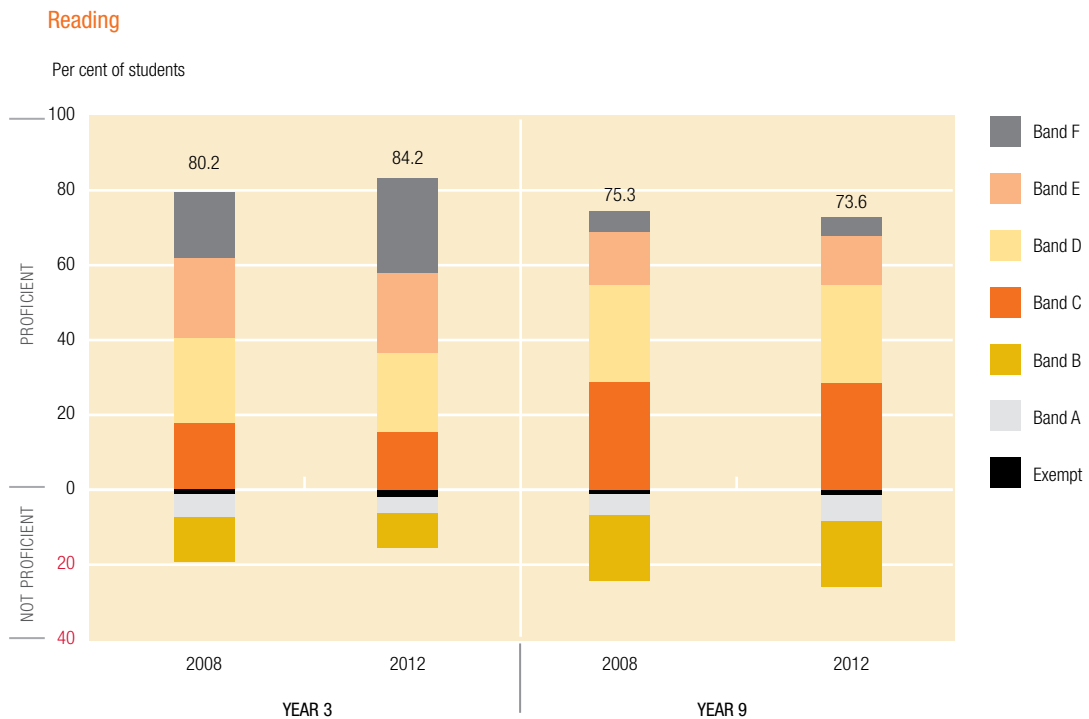
Despite rapid educational attainment growth in the working age population, there is a question as to whether skills are increasing sufficiently across the entire Australian community.

The available data indicates that at Year 9, approximately one-quarter of students are not performing at a proficient standard in numeracy or reading.<sup>16</sup> Between 2008 and 2012, the proportion of Year 9 students considered proficient in reading and numeracy declined (see Figure 6). In this analysis, Bands C to F is considered proficient.

NAPLAN performance for Year 3 students is also presented, indicating that in excess of 80 per cent of students are performing at a proficient level, however, this performance is not being maintained into the later school years.

Moving beyond school-level skills, the Australian Bureau of Statistics has released data from the 2011–12 Programme for the International Assessment of Adult Competencies (PIAAC). This survey, undertaken in 24 countries, measures whether individuals possess the skills required to participate in society. In this survey, performance at a Level 3 standard is considered the “minimum required for individuals to meet the complex demands of everyday life and work in the emerging knowledge-based economy”.<sup>17</sup>

**FIGURE 6**  
**NAPLAN PERFORMANCE: READING AND NUMERACY**

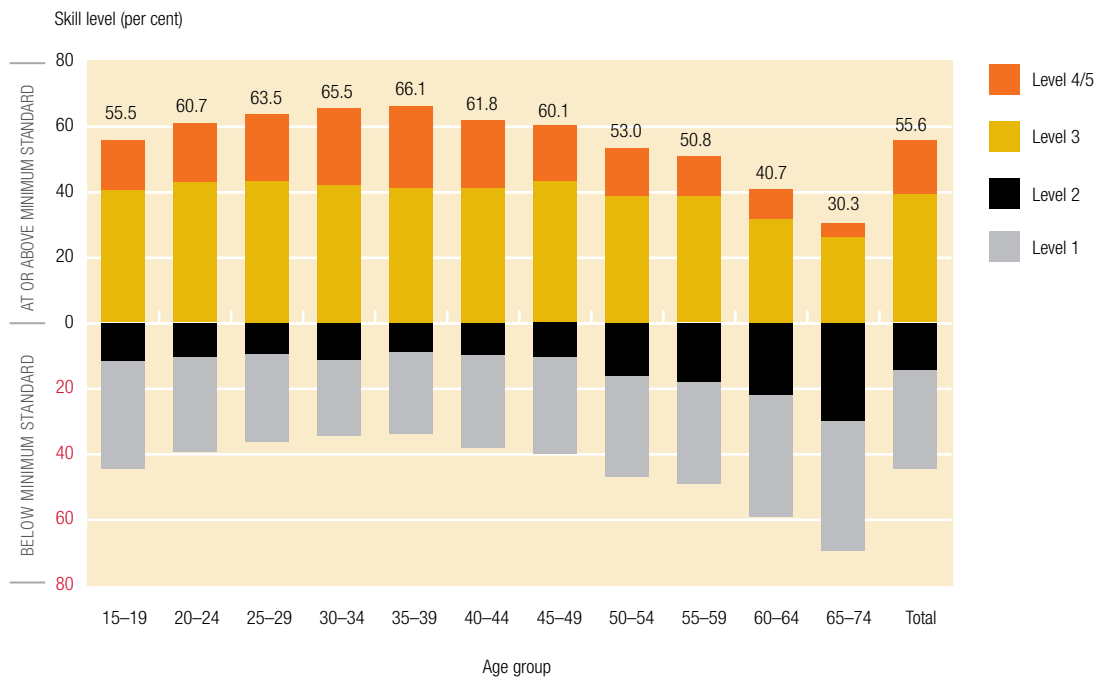


Note: Year 3: Band A = Band 1; Band B = Band 2; Band C = Band 3; Band D = Band 4; Band E = Band 5; Band F = Band 6 and above. Year 9: Band A = Band 5 and below; Band B = Band 6; Band C = Band 7; Band D = Band 8; Band E = Band 9; Band F = Band 10. Numbers in graphs represent per cent of students performing above the national minimum standard (i.e. at a proficient level) which is within Bands C to F.  
 Source: Australian Curriculum, Assessment and Reporting Authority, 2013

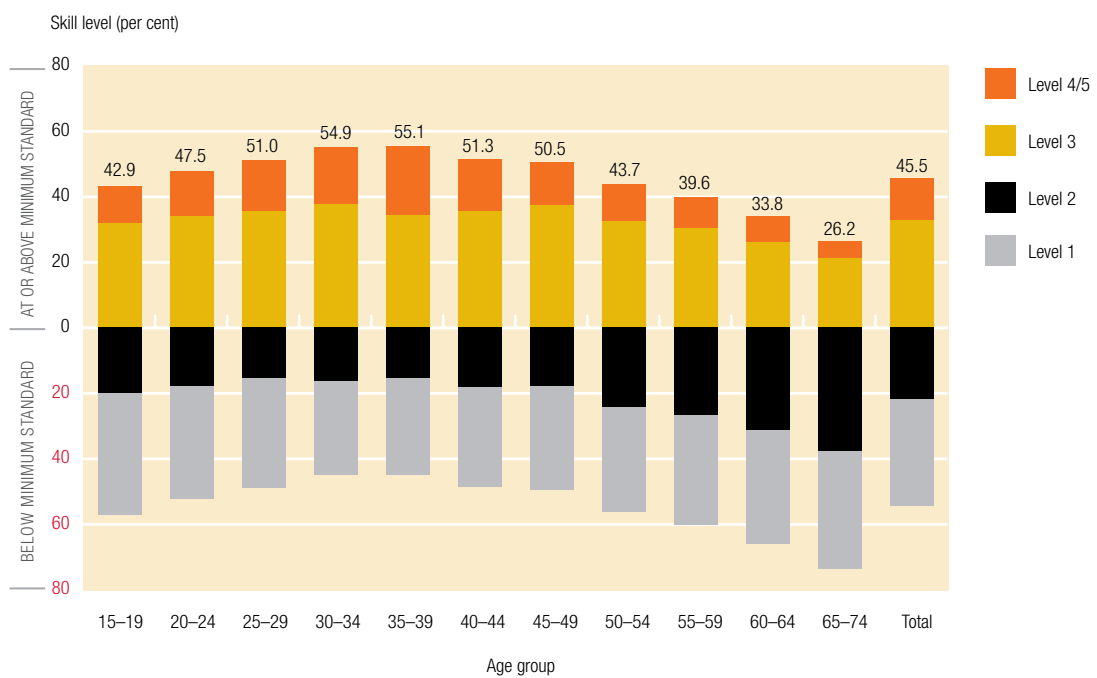
Across the Australian population aged 15 to 74, 56 per cent and 46 per cent are at or above the Level 3 standard in literacy and numeracy respectively (Figure 7). These results vary by age group, with the 35–39 age category having the highest proportion in the Level 3 or above group (66 and 55 per cent for literacy and numeracy respectively).

**FIGURE 7**  
**PROGRAMME FOR THE INTERNATIONAL ASSESSMENT OF ADULT COMPETENCIES, AUSTRALIA,**  
**2011–12**

### Literacy



### Numeracy



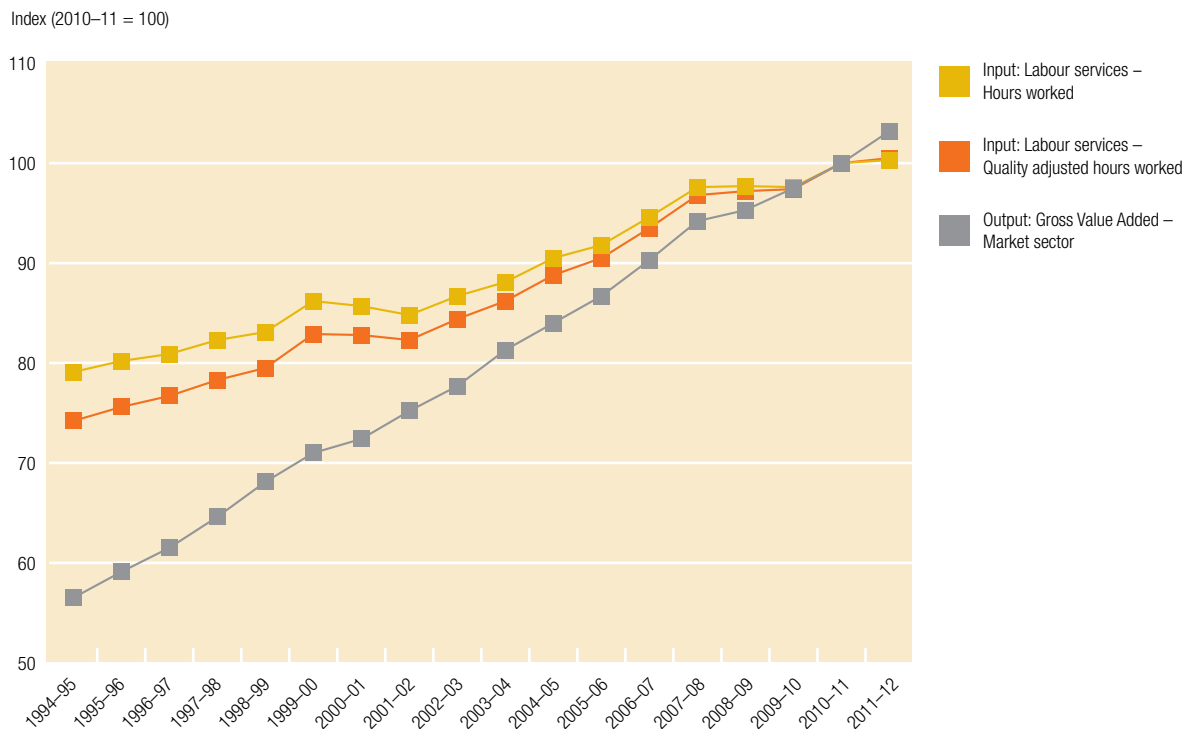
Note: Numbers above graph columns represent the per cent of population performing at or above Level 3.  
 Source: Australian Bureau of Statistics, 2013

These estimates for Level 1 and 2 literacy and numeracy skills indicate that a significant proportion of the Australian working age population does not possess the skills required to work effectively in the modern economy.

### 4.3 Labour productivity

The previous two decades has seen consistent growth in both outputs (measured by gross value added), and labour inputs (measured by hours worked) in the market sector of the Australian economy (see Figure 8).<sup>18</sup> In this analysis, a quality adjusted index of hours worked is reported, alongside an hours worked index. The quality adjusted index takes account of changes in educational attainment and the length of experience in the workforce. The quality adjusted hours worked index grows faster (1.7 per cent per annum) than the hours worked index (1.3 per cent per annum), indicating that educational attainment and experience within the labour force, are growing faster than the labour force as a whole.

**FIGURE 8**  
**LABOUR INPUTS AND TOTAL OUTPUTS: MARKET SECTOR**



Note: Quality adjusted hours worked, takes account of changes in the aggregate quality of labour due to changes in educational attainment and the length of experience in the workforce. The market sector includes all industries except for public administration and safety; education and training; healthcare and social assistance and ownership of dwellings.

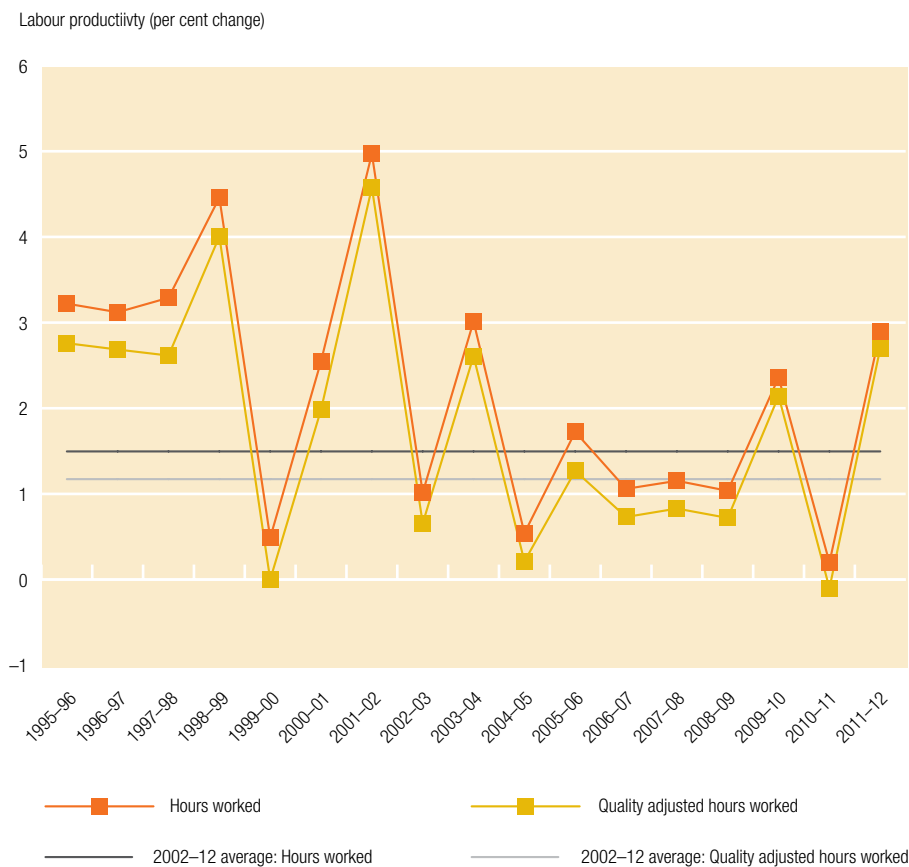
Source: Australian Bureau of Statistics, 2012

The extent to which this result is influenced by other educational attainment or length of experience is not detailed in the source data.

Data from the Australian Bureau Statistics indicates relatively volatile estimates of labour productivity (see Figure 9). However, a more telling estimate is the 10 year trend. Although labour productivity in Australia grew strongly in 2011–12, it did so after a decade in which average growth levels of 1.2 to 1.5 per cent were below the trend average from 1974–75 (1.8 per cent) and the previous decade (2.8 per cent).

Two sets of labour productivity estimates are reported – hours worked, and quality adjusted hours work. Annual growth in the labour productivity measure using quality adjusted hours worked is consistently lower than that using hours worked. This difference is due to quality adjusted hours worked growing faster than hours worked (as displayed in Figure 8).

**FIGURE 9**  
**LABOUR PRODUCTIVITY (ANNUAL PER CENT CHANGE): MARKET SECTOR**



Note: Estimates labour productivity using quality adjusted hours worked, and takes account of changes in the aggregate quality of labour due to changes in educational attainment and the length of experience in the workforce. The market sector includes all industries except for public administration and safety; education and training; healthcare and social assistance and ownership of dwellings.

Source: Australian Bureau of Statistics, 2012

It is not possible to state how much extra output in the Australian economy (measured by gross value added) is being generated due to the increased labour force quality. What can be said is that output (i.e. gross value added) is growing faster than labour input, leading to an increase in labour productivity, inferring at least an association between increased levels of educational attainment, skills and labour productivity. However, this association is not established with the level of precision policymakers often claim.

## 5. Areas for policy action

Drawing from the analysis and findings presented above, five policy action areas are identified:

1. Develop an overarching policy framework for education and training;
2. Make optimum human capital investments at appropriate points in the lifecycle;
3. Continued focus on the attainment of skills;

4. Provide individuals with the information they require to make optimum human capital investment decisions of their own; and
5. Improve Australian research on linkages between human capital and economic growth.

### 1. Develop an overarching policy framework for education and training

As noted in Section 3, there is not currently an overarching policy framework to guide education and training policy. This situation is leading to significant inconsistencies between policy approaches to components of education and training.

It is appropriate that such a policy framework be collaboratively developed through COAG. This framework should not seek to generate a uniform approach to education and training across the whole of Australia. At a minimum, it should lead to consistency *within* jurisdictions in how they approach education and training policy, as well as provide impetus for a greater degree of integration and coordination between the components of the education and training sector. An area of particular focus could be the rationale for public subsidies and entitlements for VET and higher education, and their linkage to public and private returns.

### 2. Optimise human capital investment

Government has a key role in supporting optimum human capital investment decisions. By optimum, it is specifically meant that human capital investment occurs at times that will generate the highest net return.

It should be noted that this policy action is not just about optimising *government* investment, but rather *total* investment. Indeed, a key policy issue at this point in time, particularly in VET, is the contribution that should be made by students to the cost of their education

An equally contentious issue that will need to be considered in the context of optimising human capital investment is the need to ensure that current resources are being spent effectively across all levels of education. For example, it may be appropriate to re-allocate resources from one sector to another. Only after this optimisation has occurred should consideration be given to further allocating additional resources to education and training.

### 3. Continued focus on the attainment of skills

The evidence presented in Section 4.2 suggests that a sizeable proportion of individuals are leaving school without mastering numeracy and literacy skills, impeding their ability to further develop their skills and to participate effectively in the labour force.

Accordingly, a continued focus on the attainment of key skills is required, in combination with the attainment of qualifications. These need not be alternative foci – a stronger emphasis on the acquisition of numeracy and literacy skills can be incorporated into the attainment of qualifications.

### 4. Provide the information required to make investment decisions

The provision of VET (in a number of jurisdictions), alongside higher education, has largely moved to a demand-based funding model. Such a system design, replacing fixed enrolment caps, and even caps within specific disciplines, provides students with significant decision-making authority.



For potential students to make optimal human capital investment decisions, they need to be well informed about likely future skill requirements in the economy, alongside appropriate education and training opportunities that can assist in developing these skills. Accordingly, it is appropriate that steps be taken to ensure that students have access to sufficient information on, for example, the uncertainties of future workforce requirements, and the range of skills appropriate for this uncertainty. This information should also include the characteristics of, and outcomes from, individual education and training providers, as well as funding requirements.

### 5. Improve research on linkages between human capital and growth

A key challenge in the development of education and training policy is that the theory of human capital development is ahead of the empirical evidence. Also, the linkages between human capital and economic growth, are multi-layered and take many years to materialise.

One area requiring immediate research is to better understand what skills are being applied to job activities in the Australian labour market, and how these differ within and between occupations. Australian Bureau of Statistics labour force surveys, as well as the Household, Income and Labour Dynamics in Australia (HILDA) survey do not go into this detail. Rather, these surveys ask whether individuals are using their skills, without delving into what these skills are, and how they are being applied to job activities.

A related research requirement is to better understand the skills being deployed in enterprises, and the extent to which employees possess the skills required to work effectively.

Collection of data on these issues will assist in better understanding the importance of general versus specific skills in the Australian context, and guide future policy development.

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- 13 Note: The Australian Government still controls the number of places in medicine courses.
- 14 Victorian Department of Education and Early Childhood Development. (2012). 'Refocusing vocational training – government subsidies'. Melbourne, Victoria: Victorian Department of Education and Early Childhood Development. Victorian Department of Education and Early Childhood Development. (2012, April 27). Refocusing Vocational Training in Victoria. Retrieved June 26, 2013, from Victorian Department of Education and Early Childhood Development: <http://www.education.vic.gov.au/Documents/about/department/refocusingvetstatement.pdf>.
- 15 Victorian Department of Education and Early Childhood Development. (2013). *Victorian Training Market Quarterly Report, Q1 2013*. Melbourne: Victorian Department of Education and Early Childhood Development.
- 16 Note: That is, in the top four NAPLAN bands.
- 17 Australian Bureau of Statistics. (2008). Adult Literacy and Life Skills Survey, Summary Results, Australia, 2006, Cat. No. 4228.0. Canberra: Australian Bureau of Statistics, p. 5.
- 18 Note: Gross value added is the value of output at basic prices minus the value of intermediate consumption at purchasers' prices.



## 4.3

# The future of work

## Phil Ruthven



Phil Ruthven is the founder and Chairman of IBISWorld, an international corporation providing online business information, forecasting and strategic service which operates in Australia, the United States, China, the United Kingdom and Canada.

Phil is a science graduate with further studies in management and economics at various universities and institutes, and was a Rotary awardee to the United States in the late 1960s. He spent over 10 years in the food industry and held executive positions in research, production and marketing before establishing IBISWorld.

Phil is currently an Honorary Adjunct Professor at the University of Technology, Sydney. He is a recent past board member of the Melbourne Institute, a past Director of Open Family Australia (the charitable foundation aiding street children) and a former Director of CEDA.

The nation's labour force and workforce (those actually employed) have been in constant change throughout its 215 year history since European settlement; and the next dozen years to 2025 will see as dramatic changes as have already happened in this new century so far. The challenges to employers are increasing, and a failure to adapt could lead to a dysfunctional culture and even the demise of a firm in some cases. But millions of employees will need to rethink the nature of work and how it is rewarded too. It is not a one-sided journey.

Australia entered its post-industrial age – sometimes referred to as the Infotronics Age – in the mid-1960s and this new age is forecast by IBISWorld to last until the mid to late 2040s, before yet another new age emerges. The main changes taking place in the current age, now more than halfway through, are summarised in Table 1.

**TABLE 1**  
**OUR CHANGING LABOUR FORCE**

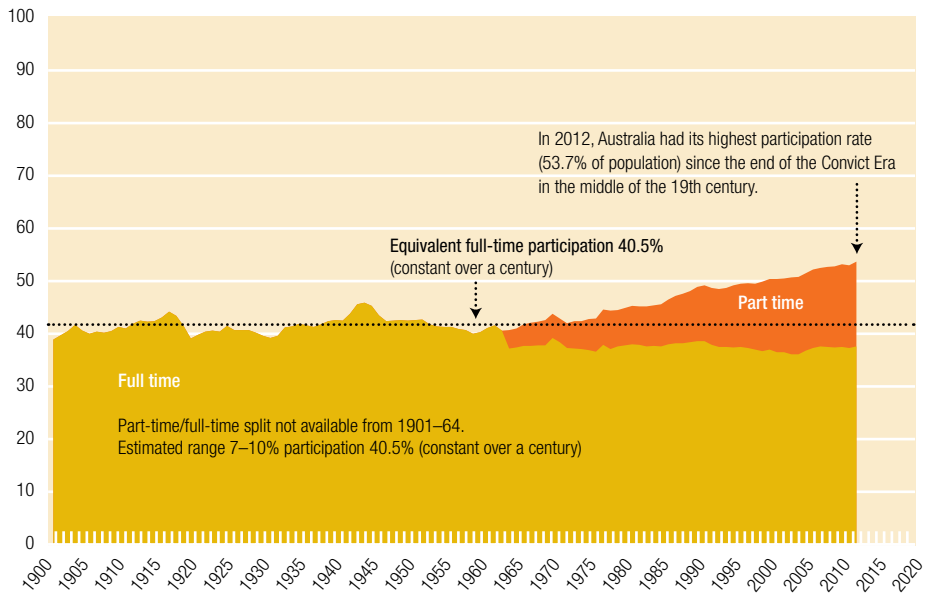
<ul style="list-style-type: none"> <li>• Higher participation rate</li> <li>• More part-time/casual work</li> <li>• Partial working from home</li> <li>• Same lifetime working hours</li> <li>• More years, less hours per year</li> <li>• Rising wages and salaries</li> <li>• More working seasons in a life</li> <li>• New industries and occupations</li> <li>• Lifetime education and training</li> <li>• New locations of employment</li> <li>• Rise of contractualism</li> <li>• Payment for outputs not inputs</li> <li>• Rise of business ownership</li> <li>• Rise of franchising</li> </ul>	<ul style="list-style-type: none"> <li>• Importance of married women</li> <li>• Women as entrepreneurs</li> <li>• Women as directors</li> <li>• The role of ICT and information</li> <li>• Knowledge worker concept</li> <li>• Work in a borderless world</li> <li>• More international jobs</li> <li>• Shallower career-ladders</li> <li>• Demise of overt discrimination</li> <li>• Demise of fixed retirement age</li> <li>• Demise of “employee” concept</li> <li>• Demise of trade unionism</li> <li>• Demise of employer chambers</li> <li>• Lesser role of formal arbitration</li> </ul>
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Not all of these changes can be discussed in this short paper, but the macro-changes will, in brief, be discussed. Despite a lot of fears that an ageing society will reduce the participation rate in the labour force and threaten the support of the population at large, such an outcome is extremely unlikely in this century let alone the period to 2025.

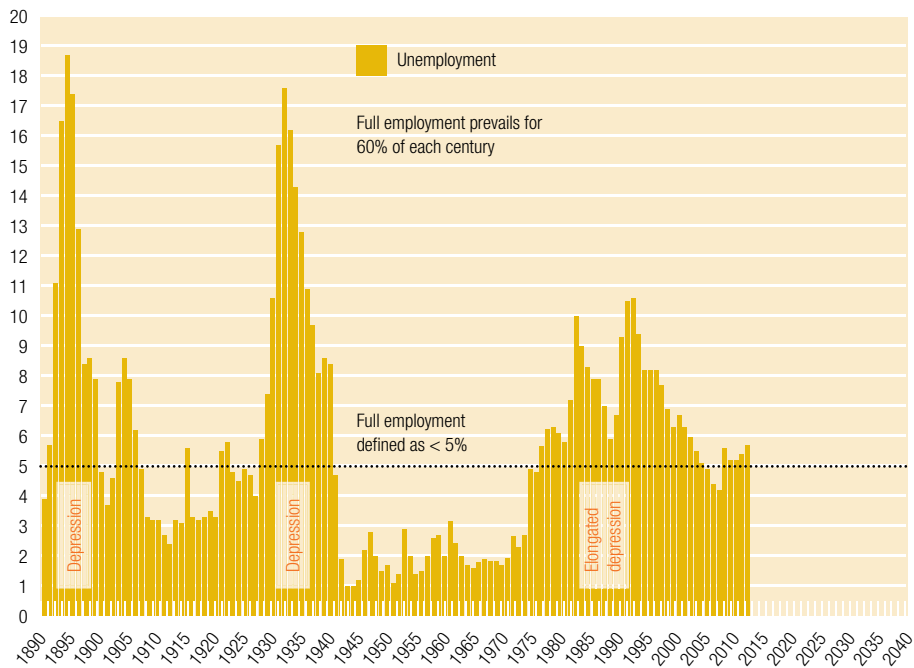
The first exhibit, below, points to an opposite trend, showing higher participation rates – as we head towards 2025. This is due to a number of factors: longer and healthier life expectancy; increased female participation rates; growth in proportion of part-time and casual work; and the reduction in the proportion of jobs requiring hard physical effort (now less than 10 per cent) of the type common in the previous Industrial and Agrarian Ages. Technology and occupational health and safety (OH&S) provisions have already helped mitigate such physical work.

Unemployment is likely to reflect a new Golden Age for Australia, wherein the level could stay close to, or below, five per cent (full employment) for several decades. Our previous golden ages have been from 1851–89 (38 years) and 1947–76 (29 years). Most, but not all, of the constraints and bloody-mindedness by unions, government and employers to a freer labour market have been eliminated or ameliorated over recent decades.

**FIGURE 1**  
**AUSTRALIAN LABOUR FORCE PARTICIPATION**  
 PART-TIME VS FULL-TIME LABOUR FORCE AS A PER CENT OF TOTAL POPULATION, 1901–2012



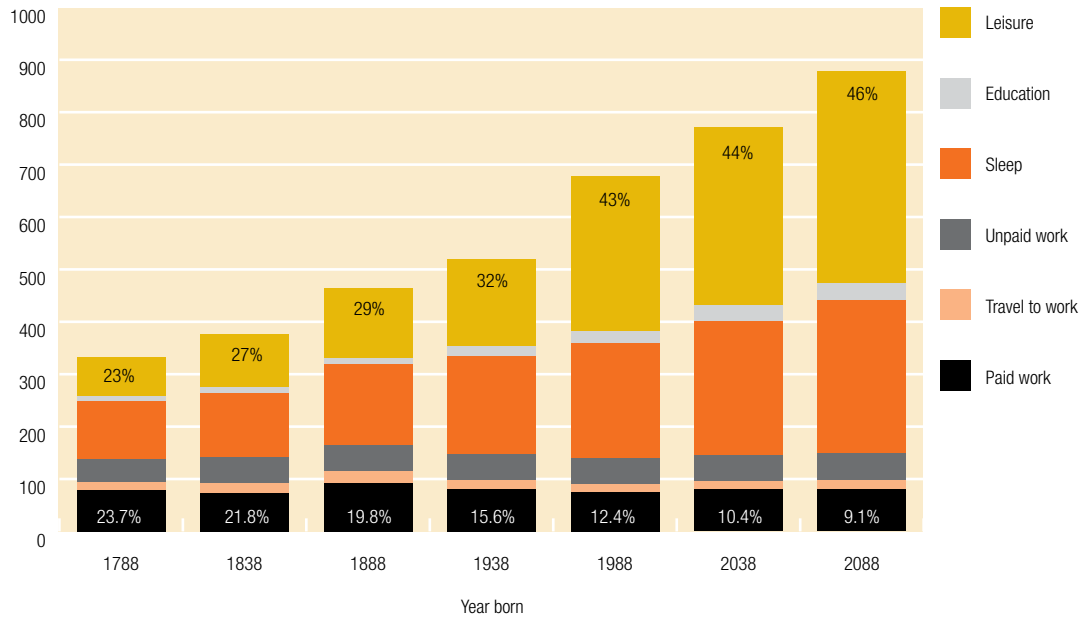
**FIGURE 2**  
**UNEMPLOYMENT IN AUSTRALIA**  
 ANNUAL, 1890–2013(F)



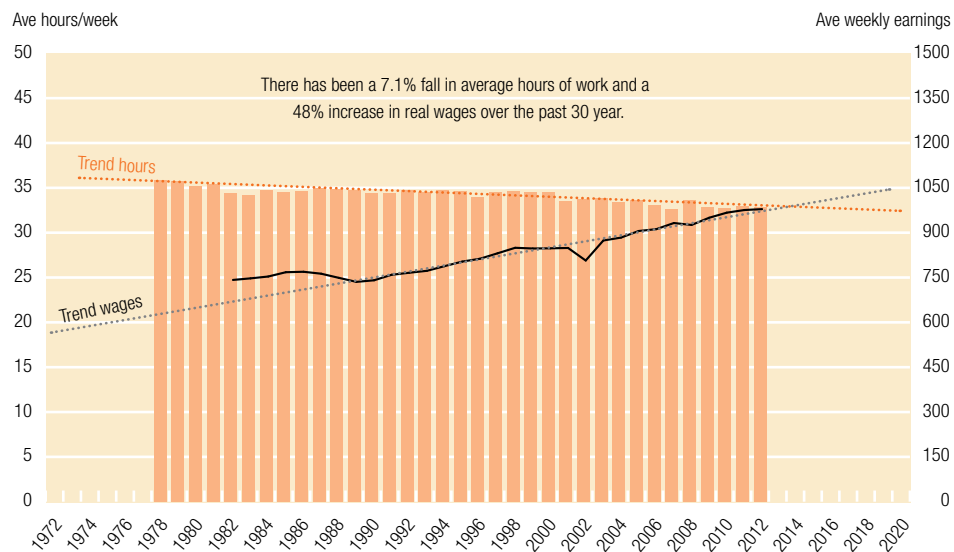
It is not known by most Australians that the total number of hours of paid work by males in a lifetime has not changed over the past three centuries. It has always been 85–90,000 hours (what could be described in olden times as a darg). What has changed is that these days we do half the average hours of work per year of our forebears in 1800, but work for double the number of years (compare 50 years these days, with 25 years in 1800) before retiring. Leisure time has increased spectacularly as a result, as seen below. Females, now approaching half the workforce, have lower lifetime paid hours but more unpaid (home) hours.

**FIGURE 3**  
**WORK AND LEISURE OVER TIME**

Life expectancy – males (thousands of hours)



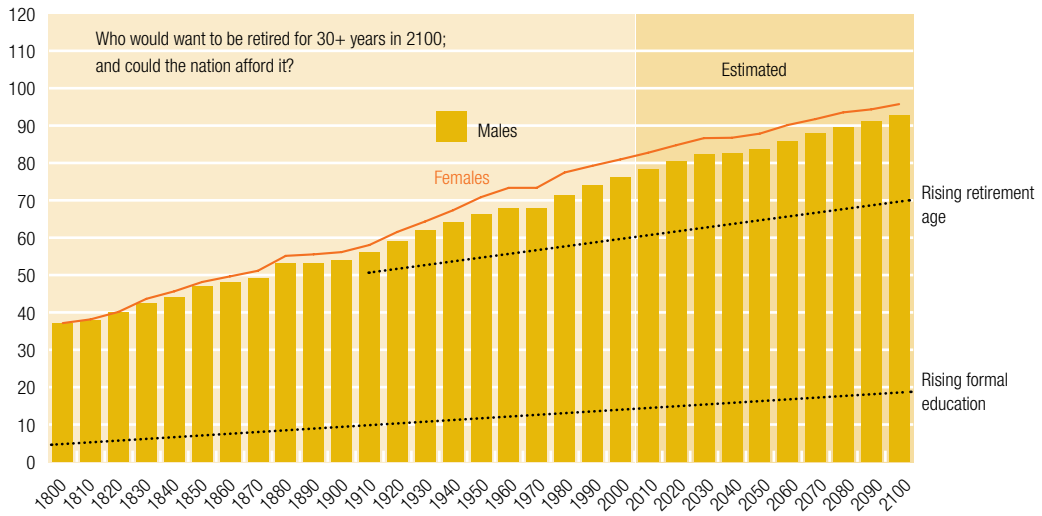
**FIGURE 4**  
**PAID WORKING HOURS**  
**TOTAL AVERAGE HOURS/WEEK AND REAL WAGES/WEEK (CONSTANT 2009 PRICES)**



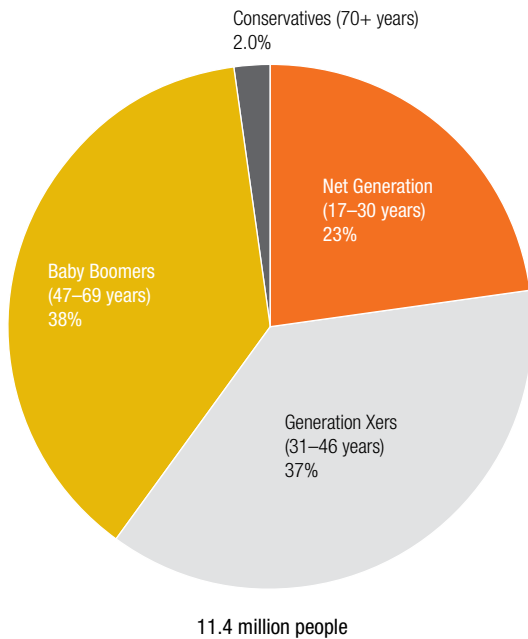
Our working hours per week and per year continue to fall, as the fourth exhibit above shows. Full time workers can have up to two months off work each year these days, made up of: holiday leave (four weeks); public holidays (10 days or two weeks); sick leave (two weeks); and long service leave. An average working week of 30 hours is within sight around 2030 when taking into account both part-time and full-time workers. Our wages, on the other hand, continue to rise as an outcome of continuing productivity growth.

Increasing life expectancy is leading to increased education and, as already mentioned, to longer working lives. In turn, the proportion of over 55 year olds and even over 65 year olds is expected to grow in the decades up to 2030.

**FIGURE 5**  
**LIVING, LEARNING AND WORKING LONGER**  
 LIFE EXPECTANCY AND THE RETIREMENT AGE OF AUSTRALIANS



**FIGURE 6**  
**WORKFORCE BY GENERATIONS (F2012)**



These days, we define generations and their differences more than we did in the industrial age. The current generations in the workforce in 2012 are shown above. Generation X and Y are now over 60 per cent of the labour force with Baby Boomer at 38 per cent.

The Generation Xers are largely very competent quiet achievers, they value work-life balance and are now running some of the nation's largest companies. They are proving to be far more efficient, are usually more financially literate and can produce up to double the return on shareholders' funds (ROSF) performance of Baby Boomers. They tolerate fools as bosses by leaving the firm. They are not convinced that Baby Boomers are all that smart, but don't say so. Generation Xers know it is now a sellers-market for smart employees and know this will probably be so for a long time.



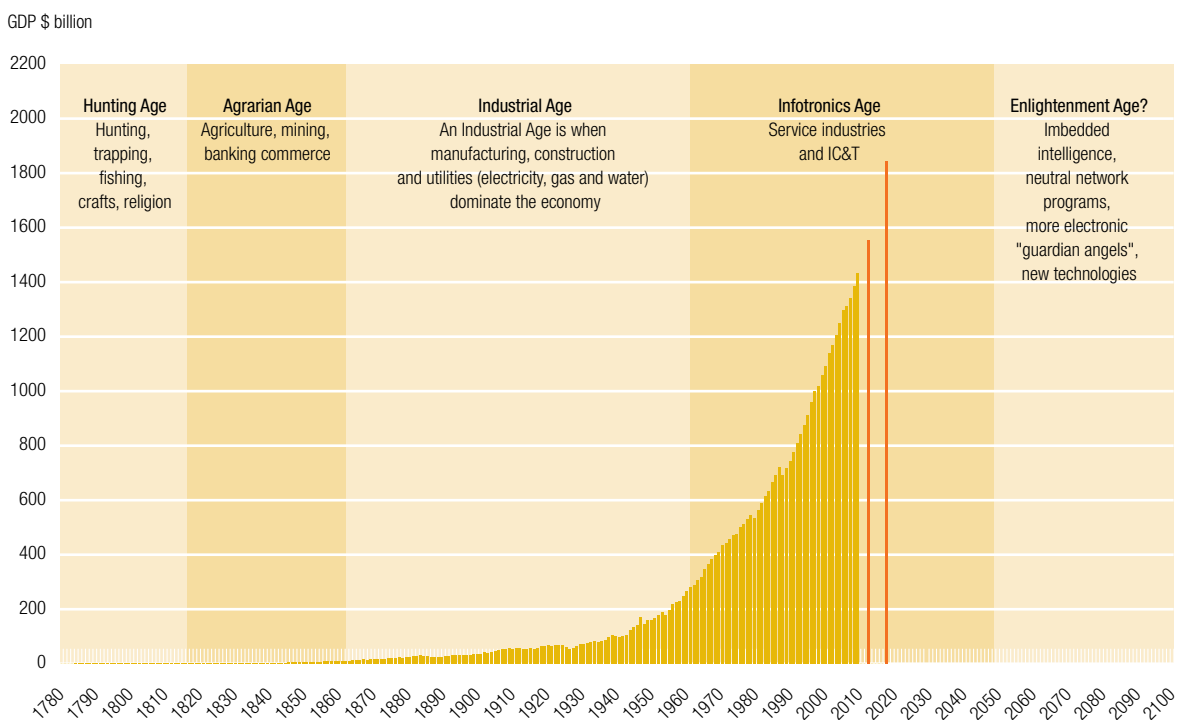
The Generation Yers are more scary than the quiet-achieving Generation Xers and have never experienced a recession; and may not be frightened of one. They are internet literate and IT savvy and know what eBusiness can do for a firm. They work together better than most generations and can make great leaders as they are innovative, goal-driven and prefer to be rewarded by results not inputs. They are happy to move and will readily take jobs offshore for the most part and want a modern organisational culture.

A worker's capacity to move to new jobs depends on their age and tenure in their current job. Many older workers have a concentration of experience and industry specific capital weighted towards longer tenures and distinctive needs of their specific occupations. A 'job for life' is a long-dead concept, meaning older workers will have to develop a 'mobility' mindset – as will employers with their products and employment conditions. Young workers in general are already learning more about the competing merits of moving between different jobs and occupations as opposed to only following one set career path. Many workers will continue to build productive and enduring employment relationships but with an increasing fluidity to find a new equilibrium in career stability.

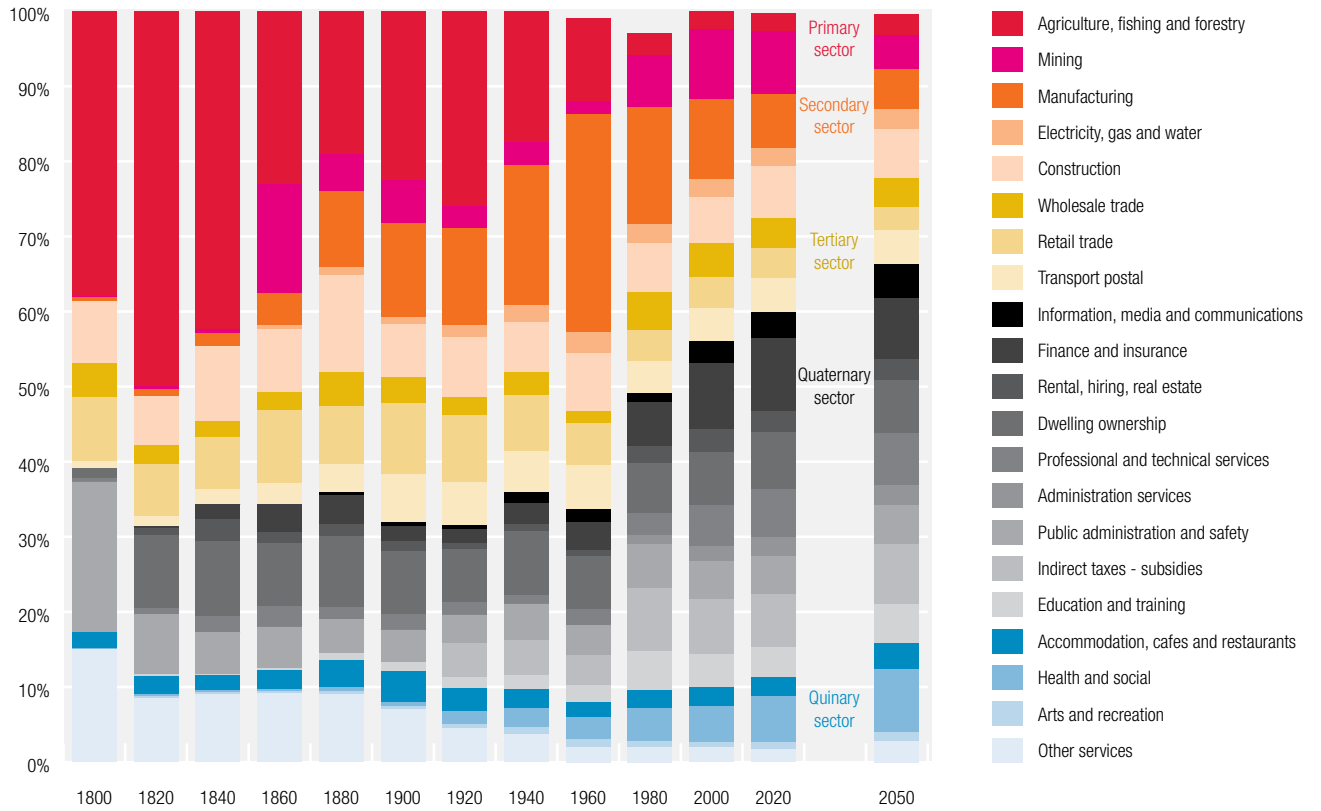
Clearly the importance of understanding the different generations in the workforce is paramount, with a need to understand what makes each tick as they move through to the dominance they now are approaching. Employers, unions, government, business and business organisations will need to become less rigid in the job market as younger generations of workers' capacity to change jobs increases. Inter-firm mobility and flexibility are the order of the day.

Let's now turn to the industries in which the various generations have worked and are likely to work in the decades ahead. Our nation, as have other developed economies in the OECD, progressed through four eras of progress and prosperity; seen in Figure 7, followed by our changing mix of industries.

**FIGURE 7**  
**AUSTRALIA'S ECONOMIC GROWTH**  
GDP AT CONSTANT F2011 PRICES 1788 TO 2012 AND ONWARDS

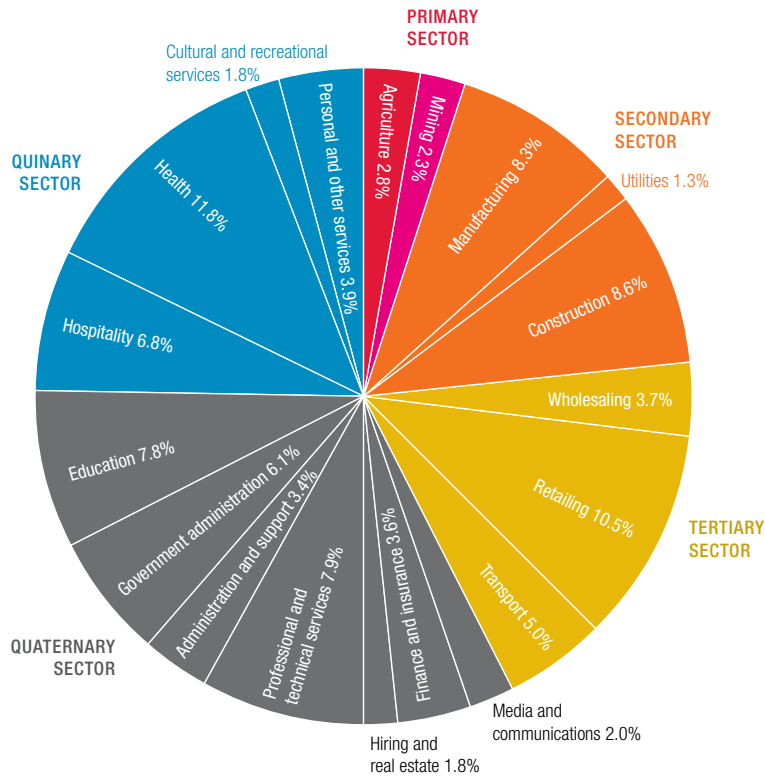


**FIGURE 8**  
**IMPORTANCE OF INDUSTRIES**  
 SHARE OF GDP BY INDUSTRY DIVISION, 1800–2050



Note: At market prices to 1940, at factor cost thereafter  
 Source: NG Butlin, ABC and IBISWorld.

**FIGURE 9**  
**EMPLOYMENT BY INDUSTRY SECTORS**  
 AUSTRALIA, YEAR TO MARCH 2013, SHARE OF TOTAL EMPLOYMENT



The mix of industries in our economy have changed accordingly. It has been a dramatic series of changes as we moved from one age to another. The diversity of jobs within each industry has grown substantially and our current employment mix in these industries has changed over time within the sectors noted above.

The vast majority of industries (now 509 classes of industry in our economy) have been created by outsourcing. Over time we have outsourced the growing of things to create the Agrarian Age, aided by new technologies, mainly transport. We outsourced the making and building of things to create the Industrial Age industries of manufacturing and construction, aided by new technologies and utilities. We are outsourcing services (household and business functions) and overseas countries are outsourcing to us (our newer exports of goods and services) to create the current Infotronics Age from 1965–2040s, aided by new systems and technologies and a new utility sector. Outsourcing has reached over one trillion dollars in extra revenue per annum in 2013 that did not exist at the end of the Industrial Age in the mid-1960s.

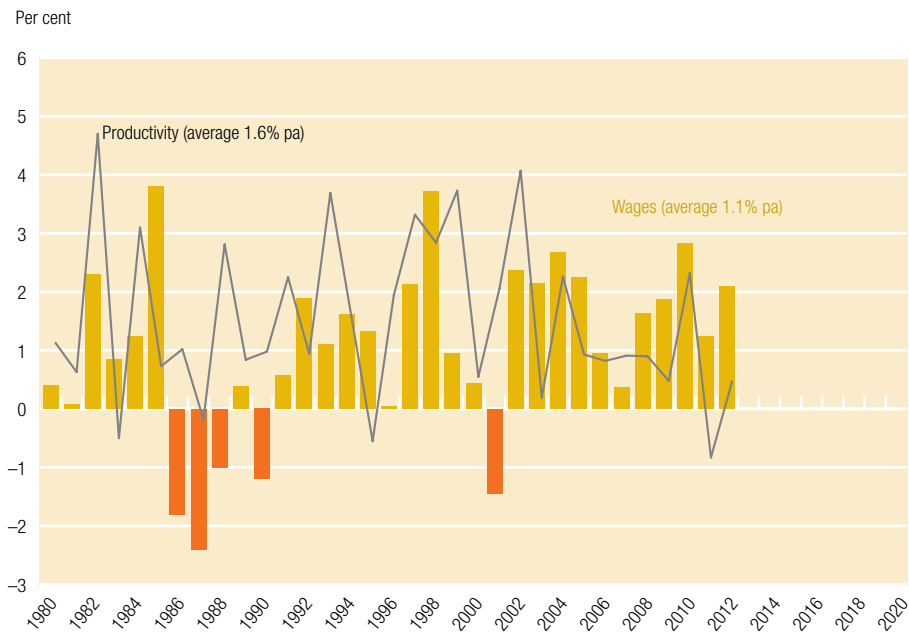
Indeed over 100 new industries have been created since this new age began in the mid-1960s. Household outsourcing includes hospitality, entertainment, household services, personal health, fitness and beauty services, tourism, education, child minding, financial management and other services. Business outsourcing now includes trucking, facilities management, business services (like legal, accounting, and computing), cleaning, catering, human resources staffing, security, call centres/customer relationship management (CRM) services and operations/franchising. Overseas outsourcing to us includes mining, tourism, education, health, aquaculture, manufacturing and intellectual property (IP).

The new enabling utilities that exist today are information and communications technology (ICT), fast broadband, nanotechnology, biotechnology, just-in-time systems and self-service systems. The fastest-growing industry themes in this new age since 1965 and in the decades ahead to the end of this current age in the late 2040s are shown in Table 2.

**TABLE 2**  
**FASTEST GROWING INDUSTRY THEMES NEW AGE 1965–2040s**

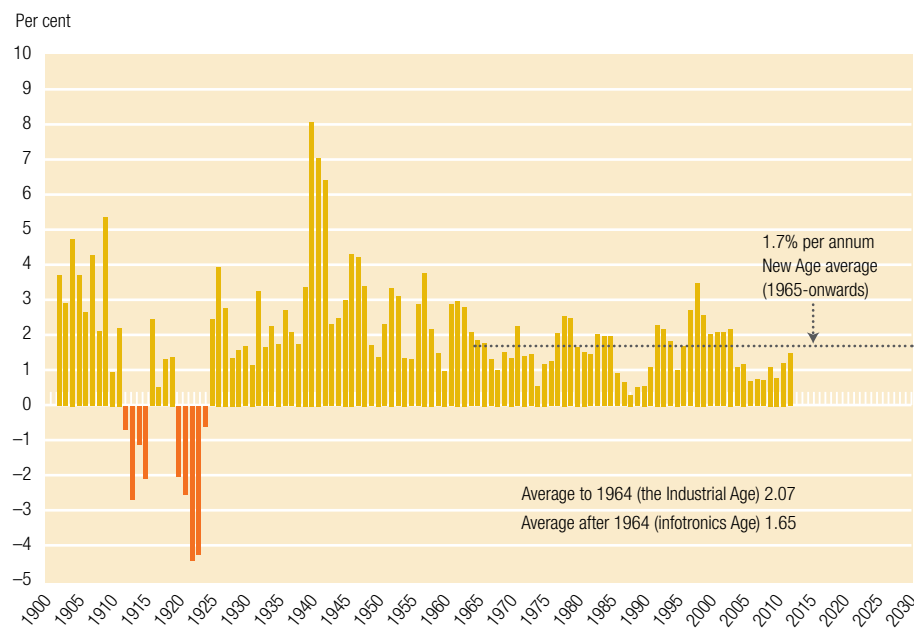
- |                                                                     |                                                                                      |
|---------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| • ICT and fast broadband – the New Age all-pervasive utility.       | • Hospitality and tourism – outsourcing the kitchen and travel.                      |
| • Knowledge industries – databases and multi-media services.        | • Recreation and cultural services – outsourcing leisure.                            |
| • Business services – outsourcing non-core functions.               | • Mining – energy minerals (oil, gas, coal, uranium).                                |
| • Financial services – outsourcing of transactions/investment.      | • Construction – cyclical, but growing importance of civil work.                     |
| • Property services – outsourcing ownership, facilities management. | • Transport – cyclical, but growth in road, air and pipeline and freight forwarding. |
| • Health – outsourcing home doctoring.                              | • Biotechnology and nanotechnology – New Age technologies.                           |
| • Education – outsourcing pre-school, plus universities.            | • Environmental services – testing, assessment, amelioration.                        |
| • Personal and household services – outsourcing chores.             |                                                                                      |

**FIGURE 10**  
**REAL WAGES AND PRODUCTIVITY**



Source: Economist Intelligence Unit - Global Outlook; weighted average of national growth rates by GDP

**FIGURE 11**  
**PRODUCTIVITY GROWTH**  
 CHANGE IN BDP/HOURS WORKED 1903–2013 (3-YEAR MOVING AVERAGE)



However, businesses are ever-worried about wages and productivity. This is despite the fact that there is some comfort moving towards 2025 in that wages have been rising at a slower rate than productivity for many decades, but with employees sharing company profits via their super funds in addition to wages. Refer to Figure 10.

Taking into consideration the history of our productivity growth over the past 110 years, IBISWorld expects a return to the long term average of 1.8–1.9 per cent per annum over the dozen years to 2025. There is an enormous difference in productivity over the past five years across the nation's 17 industry divisions that make up our economy.

FIGURE 12

## PRODUCTIVITY GROWTH BY INDUSTRY

VALUE ADDED/HOUR WORKED GROWTH, AVERAGE CHANGE (% PA) FIVE YEARS TO MARCH 2013

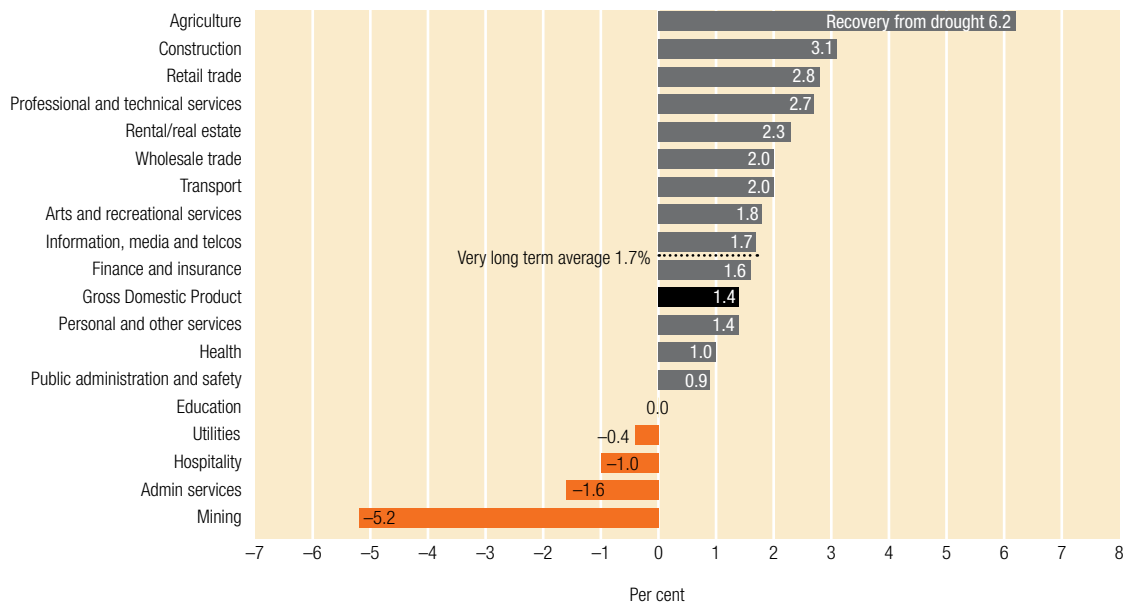
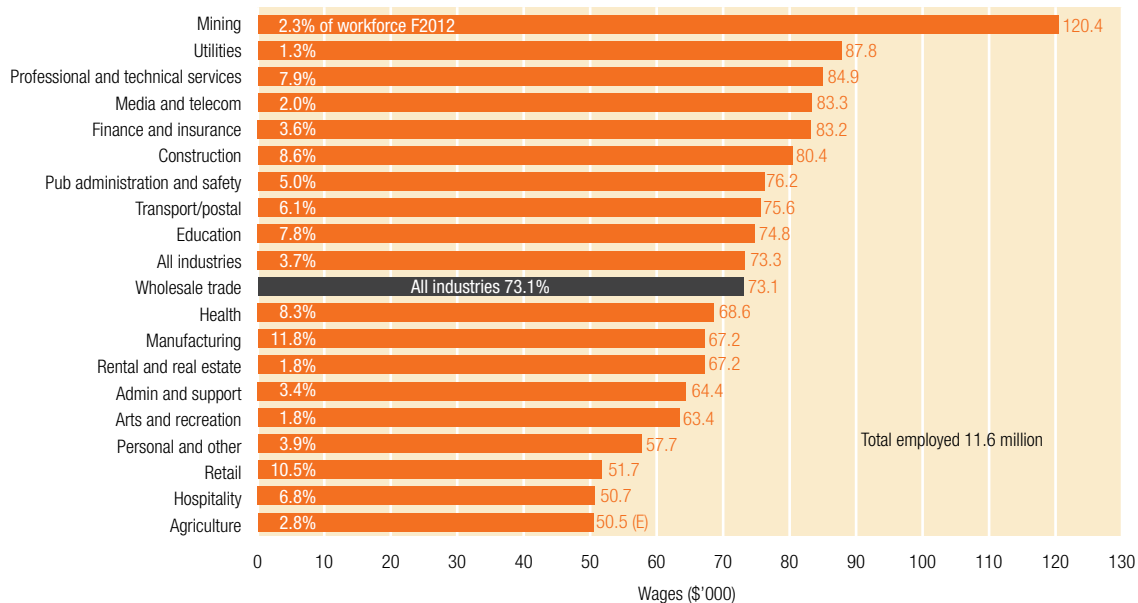


FIGURE 13

## WHERE THE MONEY IS BY INDUSTRY

FULL-TIME TOTAL ADULT EARNINGS, 12 MONTHS TO DECEMBER 2012 (\$'000)



Source: ABS 09/06/13

Wages differ enormously across industries. Mining currently tops the list at over \$120,000 per employee; but with agriculture, hospitality and retailing bringing up the rear at well below half the mining wage, and notably lower than the nation's average wage. Those industries requiring less education (especially higher education) or threatened by imports are expected to continue to have wage levels below the average in 2025.

Clearly many of our industries face serious challenges in instituting reform, new systems and technology to get into a positive productivity stance, let alone achieve the overall average of all industries. They include education, utilities, hospitality and – perhaps surprisingly – mining.

There are many other changes that can be expected to develop over the period to 2025 and on to the remainder of this new age to the late 2040s. They include the continuing and evolving role of information technology in the workplace, be it at the office, warehouse, home, car or aeroplane. And multiple locations even in a day, as the virtual workplace becomes a reality for more and more workers.

And there is more, as suggested in Table 3. Learning to cope with a workforce that involves more freedom will be one of the most important.

**TABLE 3**  
**WORKER FREEDOM IN THE 21ST CENTURY**

- No 'bondage' by businesses, bosses or unions
- The gradual demise of the concept of an 'employee'
- Rise of contractual relationships
- Payment for outputs, not inputs (hours of work)
- Emergence of advisers and mentors for worker contracts
- Rise of business ownership (workers owning a business)
- No discrimination on any basis (gender, race, age etc)
- More part-time and casual work
- Partial or total working from home, if practicable
- More working seasons in a life
- New industries and occupations
- Working in a borderless world
- Knowledge worker concept
- Lifetime education and training
- Rising wages and salaries

The gradual supplanting of the word 'employee' can be expected as we move to the concept of each worker being a business in his or her own right, contracting with other businesses for work to be done. Union membership, once 55 per cent of the workforce can be expected to be 10 per cent by 2025, and may even come to be seen as a disadvantage. Payment by outcomes (results) rather than inputs (mere hours) will become the norm.

As said in the beginning, quite dramatic changes can be expected in our workforce over the next two decades. But, 'twas always thus.



## 4.4

# Australia's industrial relations system and the need for organisational agility

## Professor Paul Gollan and Dr Senia Kalfa



Professor Paul J Gollan holds a Masters of Science (Economics) and Doctor of Philosophy from the London School of Economics and is Professor of Management and Associate Dean (Research) in the Faculty of Business

and Economics at Macquarie University.

Paul has lectured at a number of universities and colleges throughout the United Kingdom and Australia. Paul has authored, co-authored and co-edited 14 books in the fields of human resources and industrial relations. He has also written over 34 book chapters and 48 refereed journal articles.

In 2008 Paul was named in the most influential list of 'The ones to watch' in *Human Resources Magazine* Most Influential HR People in the UK.

Paul is a regular contributor in the media on workplace issues and a regular columnist on workplace issues for *The Australian Financial Review* with over 200 articles in newspapers. He is also an occasional workplace relations expert for BBC and ABC radio and television.



Dr Senia Kalfa is a Research Fellow at the Department of Marketing and Management, Faculty of Business and Economics at Macquarie University. She holds a Doctor of Philosophy from the University of New South Wales and

an MSc in Human Resource Management from Aston Business School, Birmingham (UK).

Senia has lectured at a number of universities throughout Australia on topics such as organisational behaviour, organisational change and research methodology. Prior to her current role, Senia worked as a research fellow on the University of Melbourne and PwC Agility Study. Alongside Paul Gollan, Senia contributes to opinion pieces on workplace issues for *The Australian Financial Review*.



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## Introduction – the Australian IR system

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Over the past decade, Australia has seen a significant decline in productivity growth. According to a recent report by the Grattan Institute, labour productivity for the Australian economy grew at an average of 1.5 per cent per annum over 2000–10 compared with 2.1 per cent per annum over 1990–2000.<sup>1</sup> This downward trend has triggered a debate in government, industry and academic circles, with stakeholders devoting time and resources in attempts to unearth the reasons behind such an alarming trend. At the same time the business press has been reporting an increasing level of industrial disputes. According to the Australia Bureau of Statistics (ABS), in 2007 there were 135 disputes resulting in a strike and 49,700 working days being lost. In March 2013 the number of similar disputes reached 218 with a loss of 289,500 working days.

The combination of these two debates has raised the legitimate question: How does the Australian industrial relations (IR) framework influence national productivity? According to Ackers, IR “describes public policy and the employment practices of employers and unions”.<sup>2</sup> IR literature during the 20th century equated these employment practices with models of employee participation, and more specifically with collective bargaining with unions. As such within this chapter we explore the impact forms of collective bargaining have on workplace productivity.

However, before we do so it is pertinent to present a brief review of the Australian IR system. Initially, the Australian IR system was based on compulsory conciliation and arbitration by the Australian Industrial Relations Commission. However, the early 1990s saw a focus on enterprise-level bargaining that led to improvements in wages and working conditions which were linked to business productivity and efficiency.<sup>3</sup> In 1996 and wanting to speed up labour market deregulation, John Howard’s Federal Government allowed the formation of individual statutory agreements, known as Australian Workplace Agreements (AWAs), an agenda which went into full speed after the 2004 federal election when the Coalition also won control of the Senate. This became the Work Choices legislation. The rationale supporting the intended policy reform was “to remove the influence of external third parties from workplace relations, enabling employers and employees to deal directly with each other for the benefit of the enterprise and in turn the national economy”.<sup>4</sup> The unpopularity of Work Choices led to the Howard Government’s demise and since then, the Labor Government has implemented its Fair Work reforms, which intended to “get the balance right” between fairness and flexibility in Australian workplaces.

The Fair Work Bill 2008 was introduced into the House of Representatives on 25 November 2008 by then Deputy Prime Minister and Workplace Relations Minister, Julia Gillard. After a Senate inquiry in early 2009, the Fair Work Bill 2008 was finally passed in the Senate with minor amendments on 20 March, 2009 and received Royal Assent from the Governor-General on 8 April, 2009. This bill, built on the Workplace Relations Amendment (Transition to Forward with Fairness) Act 2008, started the process of dismantling the Howard Government’s Work Choices reforms. Underpinning the Fair Work Act are six main objectives:

1. Providing workplace relations laws that are fair to employees and flexible to employers, and promote productivity and economic growth;
2. Ensuring a guaranteed minimum safety net of fair, relevant and enforceable wages and conditions;
3. Ensuring that the guaranteed minimum safety net cannot be undermined;

4. Assisting in balancing work and family responsibilities;
5. Enabling fairness and representation at work, prevention of discrimination, freedom of association, right to be represented and protecting against unfair treatment; and
6. Achieving productivity and fairness through an emphasis on enterprise level collective bargaining underpinned by simple good faith bargaining obligations.

Given the scale of the reform, the Federal Government made a commitment in the Explanatory Memorandum to the Fair Work Bill 2008 to comprehensively review the operation of the legislation two years after its full commencement in July 2009. The independent review panel was appointed in December 2011 by the Minister for Employment and Workplace Relations, and their report was released on 2 August 2012.<sup>6</sup> After months of deliberation, the review panel in a 300 page document concluded that “the current laws are working well and the system of enterprise bargaining underpinned by the national employment standards and modern awards is delivering fairness to employers and employees”.<sup>7</sup>

Both the FW Act and its review were not greeted with enthusiasm from the business world. On the contrary, a number of Australian businesses and their representative groups have blamed Labor’s IR policy for Australia’s decline in productivity growth. For example, the former BHP Billiton, Chairman, Don Argus criticised “the inflexible industrial relations laws for Australia’s lagging productivity”<sup>8</sup> and the Australian Industry Group stated in 2012 that “the FW Act is hampering productivity growth, workplace flexibility, and competitiveness”.

Such comments reflect the assumptions that have shaped much of today’s economic thought: That labour institutions such as unions and regulation of pay and employment are the reason behind sluggish economic growth because they encourage labour market rigidity. According to leading American economist Richard B Freeman economists nowadays see “the deregulation of labour market institutions and wage inflexibility [as] the keys to economic success”.<sup>9</sup> He traces this line of thinking to reports in the 1990s by the OECD<sup>10</sup> and the IMF<sup>11</sup> that argued for the deregulation of the labour markets. These bodies, contends Freeman, “have long feared that labour institutions will undermine the macro-economic stabilisation policies and structural adjustment programs they recommend”. However, what does the data show? Is there a causal mechanism that connects IR legislation with productivity?

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## Bargaining and productivity – a tenuous link

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Despite the vehement arguments put forth from business representatives of the detrimental role the FW Act has played in Australia’s productivity, within the scholarly community there is an overwhelming agreement that while the IR policy does influence productivity, that impact is negligible.<sup>12</sup> In the words of Caballero: “The empirical evidence supporting the negative impact of labor [sic] market regulation on microeconomic flexibility has been scant at best. This is not too surprising, as the obstacles to empirical success are legions, including poor measurement of restructuring activity and labor [sic] market institutions variables, both within a country and more so across countries”.<sup>13</sup>

The relevant empirical research is consistent in concluding that if there is any effect of bargaining on productivity, then this effect is small. In a review of US studies, Hirsch maintains that the effect is more likely to be negative than positive when drawing on economy-wide data.<sup>14</sup> At the same time he highlights patterns that emerged in research

within a single industry setting. First, Hirsch<sup>15</sup> maintains that the effect of collective bargaining on productivity is the largest in industries where union wage premium is pronounced (although there are criticisms as to whether this constitutes a productivity effect or a wage effect). Second, positive effects arise primarily when competition in the product market is high and only in private, for-profit, sectors. Evidence suggesting competitive environments are necessary for positive union influence is confounding, since in such environments unions usually tend to have the least scope for organising and influencing wage gains. Similarly, other research within a single industry produces a varied picture, with scholars disagreeing as to whether the effect is positive<sup>16</sup> or negative.<sup>17</sup>

The picture is similar for countries outside the US. For example, in the UK and Japan, Doucouliagos and Laroche found that unionisation and productivity are negatively related.<sup>18</sup> Metcalf though argues the opposite for Japan, claiming unions in that country raise productivity, because of longer employee tenure in unionised versus non-unionised workplaces.<sup>19</sup> The impact of unionism on German productivity is difficult to conclusively identify as unions and mandatory work councils are widespread.<sup>20</sup> However, Metcalf however maintains that the evidence largely suggest a positive impact especially in larger firms.<sup>21</sup>

Within Australia, there is no empirical evidence that the FW Act and the institutional approach to bargaining it encourages, has had either a positive or negative effect on productivity. Indeed at this stage, no valid assessment of productivity can be undertaken within the Act's relatively short life. This is because at a macro level, measures of productivity are typically taken over a longer period of time – five or 10 years to identify trends, due to variations in inputs, which can be extensive, and the time lags for those inputs to show productivity outcomes. Even then, there are many factors contributing to productivity other than labour such as the level of capital investment and technology, skills, the level of education, management skills and expertise. Most of these inputs impact productivity over a longer period and require substantial investments from government as well as industry, highlighting just one factor is nearly impossible.

Hence, although the picture regarding the exact impact of IR on productivity (whether positive or negative) is unclear, the consensus is that the effect is small. Baker concluded that “there is a yawning gap between the confidence with which the case for labour market deregulation has been asserted and the evidence that the regulating institutions are the culprits”.<sup>22</sup> In a more recent report the OECD has in fact admitted to this by stating that the effect of collective bargaining on economic growth depends on other institutional and policy factors within a country.<sup>23</sup>

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## The need for agility

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The previous section has drawn on academic literature to argue that productivity is driven much more by technology, innovation, skills and education than by industrial relations.<sup>24</sup> The question therefore becomes: If IR policy is not the major determinant of Australia's productivity, but one of many, where should the attention of business, unions and governments turn to? Our suggestion is that we should look for micro-evidence in individual firms. According to Freeman:

“To judge whether formal labour market rules produce worse outcomes one could contrast employment between firms with more or less rigid internal rules... While there are problems generalising from micro-analysis to the aggregate economy, there is still much we can learn about how labour institutions operate from micro data. Indeed, the most convincing evidence that some regulations adversely affect unemployment comes from micro studies.”<sup>25</sup>

To that end we agree that there is great need for workplace level studies that can explore on a micro-level the impact IR regulation has on organisational productivity. A useful concept through which we can do such an analysis is organisational flexibility or agility. The need for flexibility has been extensively quoted in the debate on Australian productivity. For example, the Australian Human Resources Institute argued that our country suffers from low productivity because the legislative framework – the Fair Work Act – “emphasises access to employee flexible work options at the expense of the economic need to have a flexible workforce”.<sup>26</sup> In other words, the meaning of flexibility is different for employers and employees. However, we recognise that the term flexibility has been used in the past to justify excessive redundancies and while we do not support such misuse of executive power, we are cognisant that Australian organisations need to be flexible enough to respond to almost constant environmental turbulence.

Given the demonisation of the f-word, maybe agility is a better term to use. Organisational agility is a relatively recent concept within the management literature, which seeks to depict a type of organisation that is “capable of rapid adaptation in response to unexpected and unpredicted changes and events, market opportunities and customer requirements”.<sup>27</sup> According to a report by the Economist Intelligence Unit, agility “has become a core differentiator in today’s rapidly changing business environment”.<sup>28</sup> The underlying rationale behind the need for agility is that the organisational environment is becoming increasingly turbulent and interconnected, as a result “even organisations with a regional focus are impacted by uncertainty and instability in foreign markets.”<sup>29</sup>

Literature on organisational agility is limited. However, Casler conducted the first Australian study on the topic.<sup>30</sup> The model used is based on evidence gathered from 60 in-depth interviews with senior executives from 18 organisations in Australia and New Zealand. It identified three factors determining organisational agility:

1. **Horizon:** The capacity of the organisation to continuously sense the environment for emerging threats and opportunities. In other words, how far and how effectively can the organisation see in space and time?
2. **Velocity:** The capacity of an organisation to quickly move material and non-material resources across its network in a goal-directed manner. In other words, how quickly can the organisation mobilise/redeploy funds, people and information to achieve new goals?
3. **Plasticity:** The capacity of an organisation to rapidly form and dissolve internal and external relationships and make changes to the nature of those relationships. In other words, well-formed, discreet organisational boundaries/silos are out-dated and the way internal/external relationships are formed...take on a whole new meaning.

We argue that Australian organisations, especially those engaged in the production of high value products and services, should strive to become agile. For example agility can be particularly beneficial for Australian manufacturers who have been struggling with the high Australian dollar and high wages. While the demise of manufacturing in our country is almost predetermined, in our mind denying a future for a sector that employs four times as many people as mining in non-resource rich states and contributes 25 per cent of the national research and development and 29 per cent of exports is unwise.

ResMed, the manufacturer of medical equipment for treating, diagnosing, and managing sleep-disordered breathing and other respiratory disorders is an example of an Australian agile manufacturer. In a recent round of in-depth interviews we conducted with 41 ResMed employees at all levels, we found that an agile mindset permeated all aspects of work life in the medical manufacturer. Preliminary analysis suggests a constant sense of urgency underpins their way of thinking. Interestingly enough, this sense of urgency is externally imposed by the frequent changes of the regulatory environment in the USA, ResMed's primary market. ResMed have used this pressure to their advantage and alongside Cochlear and CSL they are one of the few Australian manufacturers that are successful on an international stage.<sup>31</sup>

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## Recommendations

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We wish to make a caveat here, simply because we are advocating a focus on internal organisational operations does not mean we are disregarding the importance of IR policy. Quite the contrary, we believe that the IR framework can play a crucial role in facilitating organisational agility by bridging parochial ideological differences and allowing Australian businesses to build trust between management and employees. This is a point highlighted by former Australian Council of Trade Unions president Anna Booth who has more than once argued the shortcomings of our us versus them IR system. The IR framework can facilitate the pursuit of agility by encouraging consensus rather than adversarialism. To that end, the FW Act Review Panel recommended:

“That the role of the Fair Work institutions be extended to include the active encouragement of more productive workplaces. This activity may, for example, take the form of identifying best-practice productivity enhancing provisions in agreements and making them more widely known to employers and unions, encouraging the development and adoption of model workplace productivity enhancing provisions in agreements, and disseminating information on workplace productivity enhancement through conferences and workshops.”<sup>32</sup>

We suggest that productivity-related discussions can be encouraged in Australian businesses through the establishment of bodies similar to the European Works Councils or the British notion of partnership.<sup>33</sup> In continental European countries businesses utilise councils as a supplementary form of employee representation. For example, France has statutory elected workers' councils while Germany has an elaborate system of Work Councils and Work Directors known as co-determination. While bargaining about wages and conditions happens through the recognised union, where present, matters internal to a company's processes are discussed within the council, therefore minimising third party involvement in internal matters but at the same time ensuring fair work conditions for employees. In the UK a similar notion is partnership which became popular in the late 1990s–early 2000s partly due to the quest of Labour Governments to modernise workplace relations.<sup>34</sup> Martinez, Lucio and Stuart explain that modernisation incorporated, among other things, move away from adversarial relationships between employers and trade unions to collaborative ones “on the basis of a common interest between capital and labour in enterprise performance and competitiveness”.<sup>35</sup> Partnership was a welcome change in British industrial relations and was even advocated by the Trades Union Congress (TUC) as a sustainable and beneficial choice given the previous Thatcherite strategy to ignore and weaken unions.<sup>36</sup>

While both systems have their critics, the premise of our argument is the need for employer-employee consultation, without which productivity enhancements or an agile culture cannot be achieved. Given the declining union density in Australia, establishing

partnerships or councils can provide employees with different avenues for voice and present opportunities for greater employee involvement in organisational decision making, higher levels of knowledge sharing within the organisation and the creation of new products or processes<sup>37</sup> leading to enhanced productivity, increased profitability and lower turnover and absenteeism.<sup>38</sup>

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## Conclusion

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In this chapter through a review of the academic literature, we highlighted that while a country's IR framework is important in the pursuit of productivity, it is not as significant a factor as conventional wisdom would suggest. Instead we drew attention to the need for workplace level studies and for Australian organisations to adopt an agile mindset, therefore remaining responsive to their operating environments. However, we underline that an agile culture is only feasible when management, employees, and unions work together in the pursuit of a common goal. Management can help build such a culture through serious commitment to people and their wellbeing; unions can contribute by refraining from flexing their "industrial muscle" to get their point across and by focusing on building partnerships at work. Literature supports that at unionised workplaces, labour productivity is generally higher when good union-management relations exist and at non-union workplaces when employee participation or involvement is high. For workplaces with adversarial and non-participatory union-management relations, the reverse is usually true. In other words, employers, employees and their representatives should abandon the antagonistic mentality that seems to plague discussions regarding the employment relationship. Establishing a common ideology and allowing employers and employees to recognise the commonality of their interests is a role IR institutions can and should play.

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