

PRIME MINISTER'S MANUFACTURING TASKFORCE



REPORT OF THE NON-GOVERNMENT MEMBERS



AUGUST 2012

A report of the non-Government members of the Prime Minister's Taskforce on Manufacturing, with support from the Department of Industry, Innovation, Science, Research and Tertiary Education (DIISRTE)

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EXECUTIVE SUMMARY

Smarter Manufacturing for a Smarter Australia is a report of the non-government members of the Prime Minister's Taskforce on Manufacturing comprising business and union leaders. The leaders have benefitted from the advice of CSIRO, a number of academics, the expertise and support of a Secretariat drawn from a number of Commonwealth Departments and agencies and consultations with industry, and state and local governments.

It is a report that reflects both the critical challenges facing the sector and the rich opportunities for manufacturing over coming years. The non-government members of the Taskforce share the view that manufacturing is an important and dynamic part of the Australian economy with deeply embedded and mutually reinforcing links with primary production, utilities, construction industries and the services sector. Manufacturing can and should continue to play a key role in the development of the Australian economy and its ongoing strength, diversity and resilience.

The unique combination of global, structural and cyclical forces that is currently putting so much pressure on so many Australian businesses threatens to undermine the capacity of the sector to take advantage of future opportunities. If manufacturers are not in a position to capitalise on emerging opportunities, the Australian economy as a whole will be weaker, narrower and more vulnerable now and over the longer term.

The purposes of the non-government members of the Taskforce and of this report are to establish a shared vision for the future of the manufacturing sector; to respond to the immediate challenges of a high exchange rate, technological change and global competition and trading conditions; to provide advice on how to make the best of existing government policies and programs; and to make recommendations to capture the opportunities and respond to the challenges arising from the Asian Century.

Challenges and opportunities

The non-government members of the Taskforce recognise the full extent of the profound challenges that are confronting Australian manufacturing. More than 100,000 jobs have been lost since the start of the Global Financial Crisis and many workers, their families and communities are facing tough times and many family-owned businesses and factories that have been here for several generations are under pressure and some have closed. Many parts of the industry are operating at well below full capacity. Critical links in supply chains have been weakened and the businesses around them have been weakened.

This state of affairs has unfolded in the face of a unique accumulation of global, structural and post-GFC cyclical pressures.

As China has risen to vie with the United States for the position of the world's largest manufacturing country, global production has swelled while prices and margins have fallen. At the same time, China's demand for mineral resources has pushed up prices for key commodities and, as a key supplier, Australia's currency has risen in concert.

Further pressures have come from the relatively slow growth in Australian productivity over the past decade and consequential acceleration in growth in unit labour costs; from increases in a range of other costs on business including the strong rises in energy costs in the past few years; and from continuing burdens where there are inefficient taxation and regulatory arrangements.

Mainly because of the rise in the dollar, over a short-time span, Australia has become a comparatively high-cost country. The rise in relative costs has been exacerbated by relatively slow productivity growth. Our exports are less competitive, our domestic producers are more vulnerable to import competition and, within global businesses, Australian business units now find it much harder to compete for capital and justify investment in Australia.

In the period since the GFC and amidst its continuing fallout, these factors have been exacerbated by a lack of business and consumer confidence and the slowdown in key areas of domestic demand. Particular sources of weakness are low levels of activity in the residential and commercial construction sectors and in domestic tourism, all of which have strong links to local manufacturing.

Notwithstanding the extent of these challenges to Australian manufacturing, the non-government members of the Taskforce share a deep optimism about the capacity of Australian manufacturing to compete effectively given the development of policies that support investment and productivity growth. In addition, there are many current and emerging opportunities for Australian manufacturing as we continue to progress further into the Asian Century. The ongoing development of the Australian economy and the creation and maintenance of national wealth and prosperity rely on a dynamic and integrated manufacturing sector.

Australian manufacturing has proven capabilities to capitalise on current and emerging opportunities in the following broad areas:

- Upstream processing that capitalises on our strengths in extractive, forestry and agricultural industries.
- As suppliers of machinery, equipment and consumables particularly to the mining and construction sectors.
- In niche areas of knowledge-intensive manufacturing including medical and scientific equipment, pharmaceuticals, transport equipment including aerospace and advanced materials and in niche products that use creative design and marketing to establish unique brands and reach new markets such as cosmetics and high value fashion.

In addition there is considerable scope to build critical mass in automotive and defence supply chains.

These current and emerging opportunities are about how our natural resource advantages provide a uniquely Australian opportunity of global significance; how our world class engineering and increasingly sophisticated design skills can help meet the infrastructure and construction needs of populations at home and abroad; how the Australian knack of practical problem solving is creating niche opportunities in many areas – including those above.

As always, capitalising on opportunities will require strong leaders, talented workers, new business models and a practical approach to solving the issues and problems of most concern to customers at home and abroad and will result in a diversity of sectors being represented on the list of the most successful Australian manufacturers in the decade ahead.

Importance of manufacturing

Manufacturing makes large direct and indirect contributions to national output, employment, investment and innovation. It makes disproportionately large contributions to exports and research and development.

Modern manufacturing has strong vertical and horizontal links with associated services including in applied research, engineering, industrial design, process improvement, through-life client support and product stewardship. In recent decades, the divisions between manufacturing and these associated services have increasingly blurred.

Manufacturing also has extensive linkages across the economy both as suppliers to and as purchasers from other businesses including in extractive industries, agriculture, utilities, construction, and the services sector as well as with other manufacturers. Impacts of changes in manufacturing activity multiply across the economy.

Manufacturing underpins economic activity in many parts of regional Australia

Australia's manufacturing capabilities provide important avenues for earning income from abroad both from exports and from the returns to offshore investment.

Manufacturing's future and Australia's future go hand-in-glove

The stories we hear of prosperity speak of success: strong overall growth, low overall unemployment and a great quality of life. It is easy to see how Australia's glass might seem 'more than half full'.

However, such stories can seem a long way from the people and businesses seeing jobs go, factories close, and industries and regions seeing supply chains weaken and local strengths dissolve.

The non-government Taskforce leaders believe that Australia's future will be brighter with a broad-based national economy, built on more than a few industries in more than a few regions. A broad based national economy is one that is stronger, more resilient, more innovative and ultimately more able to provide for the needs of Australia and Australians.

It is how we can break the cycle after the 'lost decade' in which apparent prosperity has boomed, while underlying productivity growth has stalled and competitiveness gone backwards.

This is particularly important right now because Australia's current development path exposes the country to an increasing reliance on commodity exports.

This increasing reliance carries key risks:

- The risk of higher exposure to highly volatile prices (and the associated currency fluctuations that are associated with this); the exposure to highly-cyclical demand for mineral commodities from a handful of countries; being supplied from Australia by a few industries in a few regions.
- The risk of a loss of critical mass in some manufacturing sectors:
 - the irreversible or near-irreversible loss of capabilities;
 - the risk of a lack of access to finance (if the banks and other suppliers of funds become risk-averse);
 - the loss of a trained workforce and an inability to attract new entrants;
 - the break in the pipeline of the development of managerial expertise in other trade-exposed sectors;
 - the disproportionate focus on immediate skill shortages in our training and immigration programs to the detriment of a broader class of skills that would help sustain the non-booming sectors.

We should not forget our recent past when the sectors under most pressure today – the manufacturing, tourism and education services sectors – were among the sectors that underwrote the 'miracle economy' of the 1990s when the minerals sector was not benefiting from high prices and, in fact, was in retreat.

At times there seems to be a belief in our leading economic institutions that businesses can fade and

reappear at the stroke of a pen or at the fluctuation of an exchange rate.

But the real world does not work like this. Adjustment takes time and it costs money. The economy is not like Lake Eyre that springs to life with the next flood.

Investments in plant and equipment, managerial expertise, supply chains and skills take time to develop and mature; they are not readily replaceable and sometimes they are not replaceable at all.

When the mining boom ends, and in fact well before that, when the construction phase ends and the resource requirements fall back, we cannot afford to face a vacuum that takes ten or twenty years to fill.

The dominant source of improvements in Australian household incomes over the past decade has been the increase in the terms of trade as commodity prices have soared.

This is not going to repeat itself. In fact, falls in mineral commodity prices are widely expected over the period ahead as supply and demand come closer into balance. Australia needs to develop replacement sources of growth and a more diverse economic base. It needs to do so now.

A key part of delivering alternative sources of growth is manufacturing. Clearly, continuing global and technological developments are shifting the grounds of advantage. This shifting ground is as much about opportunities as it is about threats. Australia has a tremendous base of capabilities – some currently under-utilised – that can add to existing advantages and create new areas of advantage in manufacturing.

Policy directions

The non-government members of the Taskforce have developed a five point policy agenda. While this agenda looks to shape a more dynamic contribution from manufacturing over the medium to longer terms, we reiterate the urgent priority that needs to be given to addressing the immediate challenges faced by businesses and employees.

The non-government members of the Taskforce propose the following policy directions.

- 1.** To address the urgent challenges facing many parts of Australian manufacturing, and the real and imminent danger of large losses of jobs and capabilities, specific measures are proposed to boost the public and private investment pipeline, strengthen value capture from large projects in the existing pipeline, and help businesses, workers and communities manage change.¹

2. To help reboot economy-wide productivity growth, encourage investment and reduce the costs of doing business, a targeted stimulus to demand, and initiatives in transport, broadband, energy, regulation and taxation are proposed.

3. To address Australia's underlying competitiveness, deeper collaboration is needed to not only generate, but also disseminate and apply knowledge. This calls for fundamental changes in behaviour on the part of researchers, research organisations and businesses. As part of a broader overhaul, the non-government members of the Taskforce propose the development of globally-oriented innovation precincts that build critical mass around our comparative advantages and opportunities and a new Smarter Australia Network linking businesses, research organisations and others is proposed to address systemic barriers to more widespread collaboration.

4. To address the multiple barriers facing SMEs, and to help more SMEs grow into the innovative, global mid-sized firms Australia lacks, a number of steps are proposed: that Enterprise Connect be upgraded and its funding to support manufacturers be increased; that practical and proven new measures are put in place to address the weak contributions both researchers and governments currently make to SME innovation; to lift the capacity of SMEs to absorb new knowledge; to introduce and embed a greater focus on design, and to examine the potential for improving access to finance for SMEs.

5. To sustain productivity growth into the future with continuous innovation in managerial and workforce skills and practices, a new national conversation between industry, unions and government around Smarter Workplaces is proposed. To recognise that productivity gains are ultimately realised in workplaces and firms, a new national partnership for Smarter Workplaces is proposed. This involves a sustained commitment from industry, unions and government to build the managerial and workforce skills and practices – and the innovation culture – that high performance workplaces demand.²

These policy directions are put forward as elements in a coherent strategy. It is a strategy to ensure Australia has a manufacturing base that is positioned to make a dynamic contribution to Australia's economic development; that continues to employ a significant share of the total workforce; that ensures we have diverse sources of export income; and that builds our reputation in manufacturing innovation and design.

The bottom line

So what is it that the business and union leaders are proposing; what will it achieve; and what will manufacturers, workers, industry associations and unions do to really make a difference?

First and foremost, as a group of leaders we intend to say clearly to the community that there are no silver bullets. Simplistic slogans to capture the 24 hour news cycle and some 'new wonder drug' we haven't thought about have no place in our agenda for change. Instead our agenda will include:

- Building a new and stronger generation of small through to large manufacturing businesses with the management and capabilities to compete and succeed in the global economy.

- Transforming a larger portion of the \$9.4 billion that gets invested each year by the Commonwealth Government in science and research into applied knowledge in manufacturing and into jobs and wealth created by this nation's manufacturers.

- Ensuring our manufacturers continue to invest in Australia, bringing global technology and knowledge to their customers. We will do this by providing them with a reason to invest – a good business environment, world class innovation, competitive taxation and regulatory regimes and a strong body of SMEs with which to link.

- Building better supply chains that constantly drive excellence through industry, while providing pathways for our smaller businesses into global markets so that they can expand and grow. Australia's SME manufacturers will develop new business models, increase their absorptive capacity and leverage more services and original design thinking in the solutions they provide global customers.

- Building a smarter and more efficient manufacturing industry that helps build the nation's mines, cities and urban and regional infrastructure. Better cities and better infrastructure will lift the quality of life for working people and increase the nation's productivity. This is what winning is all about in today's global economy.

- Building better, more productive, smarter workplaces where trust, co-operation and collaboration helps build better more prosperous, productive and profitable manufacturing businesses.

- Alongside other initiatives, building a world class food industry and realising the benefits of the Asian century; through the Smarter Australia Network we will establish a centre to capture Asian consumer insights and develop capabilities to innovate and commercialise these insights, into high value food brands.

■ Winning the lion's share of the \$25 billion plus to be spent on the next generation submarines and the upgrade of the existing fleet; and we do it on time, on budget and thereby build a marine engineering industry of substance in Australia.

■ Building better manufacturing businesses capable of dealing with cyclical challenges and structural change. But we will also be vigilant in pushing government to reduce the time, cost and risk of doing business in this country – and to give manufacturing an investment environment that is internationally competitive. That is a priority all the leaders share.

On May 25 when we met with the Prime Minister and Ministers Combet and Shorten we said to them:

“We are particularly concerned that leadership and judgement is brought to bear on the ‘perceptions issue’ about Australian manufacturing. With the loss of over 100,000 jobs since 2008 and more structural adjustment ahead the Manufacturing Leaders Group is particularly committed to exploring how the good news story about Australian manufacturing success can be presented. We need it to reach everyone from the young student considering an apprenticeship in manufacturing and his or her parents, to the careers guidance councillor giving advice to students at the local school, to the entrepreneurs, engineers and scientists in other parts of the global economy considering Australia as a location for pursuing a career or setting up and running a business in manufacturing. They need to know that Australian manufacturing represents a good choice for a rewarding working life with many opportunities for advancement and many opportunities to be part of working for organisations that innovate and compete globally to win international business opportunities. The perception issue also matters for retaining existing employees, encouraging retrenched workers to stay in the industry and to better inform financial institutions about the reality rather than the myth of the risk profile of manufacturing businesses.”

As a group of leaders we are establishing a Manufacturers Leaders Group to work on this perception issue; to hold ongoing discussions about the tough environment our industry faces and what needs to

be considered as we build better firms and workplaces; to monitor the development of a manufacturing strategy and to conduct further research into the future of the manufacturing industry. We will deliver leadership and responsibility.

The non-government members of the Taskforce believe that this process, as well as the **White Paper on Australia in the Asian Century**, has the capacity to generate significant momentum. However, maintaining this momentum will require not only a strong commitment, but also clear pathways for delivery and follow-through.

An early but important step would be for the Commonwealth to initiate a dialogue with state and territory leaders. State Governments will be critical to such an agenda – both to help cut through the duplication, red tape and incoherence of overlapping policies and as partners in the bottom-up approach proposed.

The agenda proposed here is a complex one. It will require sensible sequencing and the engagement of multiple stakeholders. Notwithstanding the urgent pressures on parts of manufacturing, the non-government members of the Taskforce stress the need to get it done right rather than get it done fast.

A useful discipline would be for the Commonwealth Government to set some bold and ambitious, but also tangible and realistic, goals for the years ahead. Clear objectives and monitoring of progress towards them impose a useful discipline on all parties, and support the stewardship and evolution of the policy agenda itself.

We need to see different parts of our economy grow together – so we can provide a great quality of work and quality of life for the vast majority of Australians. To grow together, we need to understand that collaboration ultimately depends on willing partners who can see long-term benefits. Sometimes this needs a prompt from government, but above all it requires a shared commitment from all of us.

Manufacturing leaders on this Taskforce offer that commitment. We encourage the Commonwealth Government to embrace **Smarter Manufacturing for a Smarter Australia**.

EXECUTIVE SUMMARY – FOOTNOTES

1. This includes a strong focus on government procurement at all levels and on Australian Industry Participation in projects and tenders across Australia.
2. Where appropriate this also involves working together and with Industry Skills Councils.

INTRODUCTION AND OVERVIEW

Smarter Manufacturing for a Smarter Australia

The non-government members of the Taskforce propose a strategy – Smarter Manufacturing for a Smarter Australia – as a call for both action and aspiration. It recognises that:

- A dynamic and thriving Australian manufacturing sector is critical to the long-term health of the economy and the nation.
- Australia's practical problem solving can be a great asset that can help us to add value through applied knowledge.
- Australia needs to prepare and position for a new Asia, one that is generating both new knowledge and new demands at a rapid pace.
- All stakeholders need to lift our sights, expectations and aspirations – both for how the world sees Australia and for how we see ourselves.

This strategy is premised on the argument that a broad-based national economy is necessary for resilience, productivity and innovation and proposes this goal as a reference point against which we determine and shape policy.

The non-government members of the Taskforce stress the profound challenges facing the sector right now in the face of a unique accumulation of global, structural and cyclical pressures.

The non-government members of the Taskforce have examined the underlying challenges facing Australian manufacturing and the Australian economy. This has also enabled us to identify four longer-term challenges that an Australian manufacturing policy must meet.

First, there is a strong case for focusing on applied knowledge. More than ever in today's high-cost environment, manufacturers need to be able to value add. This requires business and government to focus on innovation.

Second, there is a need to recognise that it is business – based on market needs – that drives most innovation. This is despite the fact that the vast bulk of our innovation policies reflect an out dated supply-side way of thinking.

Third, there is a need for new skill sets to absorb knowledge, but also new mindsets that support constructive relationships within workplaces, research organisations and government agencies – and across all three. This is about relationships, not rules.

Fourth, there is a need to become smarter in our approaches to taxation and regulation to keep unnecessary costs and regulatory burdens to a minimum.

The vision of the non-government members of the Taskforce is more grounded than grand. Australians are a practical people, have a practical model of innovation and will embrace practical solutions to challenges large and small.

Priority policy directions

The non-government members of the Taskforce recognise that the new environment for manufacturing described is not a revelation. It acknowledges that governments are already trying to respond to it, and manufacturing firms confront it every day.

However, what is missing from the current debate is a coherent statement of purpose, strategic intent and policy direction that puts forward practical answers to three key questions:

- What role do we see manufacturing play in Australia’s economic future?
- What is the mindset that can prepare and position manufacturing for the challenges and opportunities ahead?
- What policies do we need to modify or create today?

It is on these questions that the non-government members of the Taskforce have focused their efforts.

The non-government members of the Taskforce propose five priority policy directions, with specific policy proposals made to support each. These directions are broad but not exhaustive – tough calls have been made to produce the package proposed. The directions proposed form a package and a lack of policy commitment on any of them will limit overall impact.

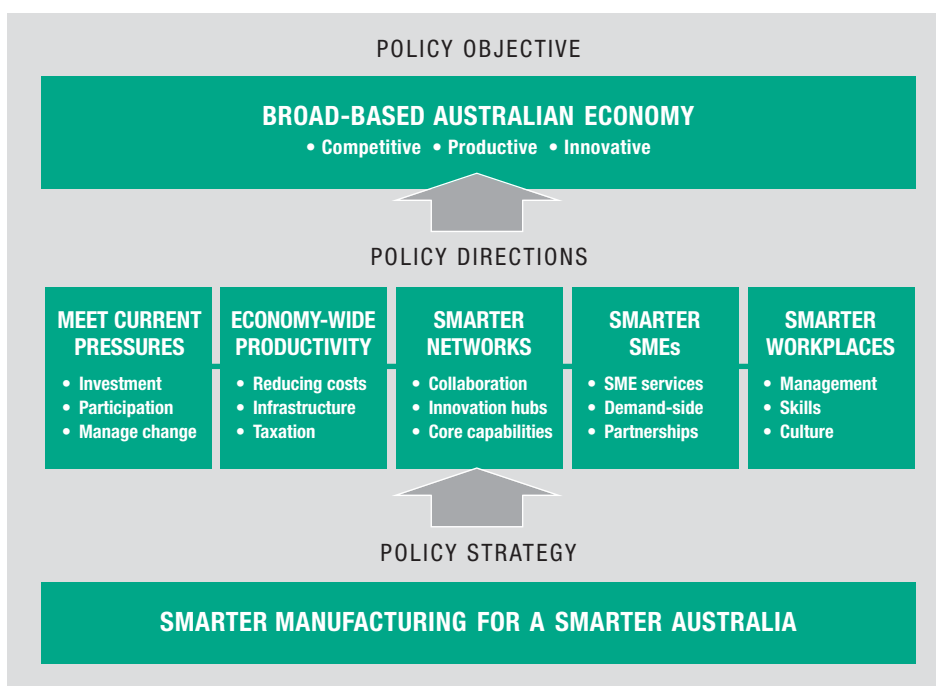
While the five-point policy agenda looks to the future, the non-government members of the Taskforce reiterate the urgent priority it gives to addressing the businesses and workers at risk now.

The non-government members of the Taskforce propose the following policy directions:

- Meeting current market pressures by helping with investment and industry participation, to reduce the risk of loss of jobs and core manufacturing capabilities.
- Lifting productivity growth and reducing business costs via economy-wide proposals in transport, broad band, energy, regulation and taxation reform.
- Improving the benefits flowing to Australian manufacturing from our research investments including through a new platform for systemic collaboration with innovation hubs and networks.
- Improving SME competitiveness and building a cohort of medium sized world competitive firms through a new SME Strategy that targets SME capability.
- Forging a shared competitiveness culture through a new national partnership for workplaces, focused on the capabilities of managers and workers.

The policy framework proposed is summarised in Figure 1.1.

Figure 1.1
SMARTER MANUFACTURING FOR A SMARTER AUSTRALIA – POLICY FRAMEWORK



In each of the directions outlined above, the non-government members of the Taskforce put forward constructive proposals and wish to be a constructive partner in change.

Australian manufacturing

Australian manufacturers are diverse. It's almost one million workers, mostly in our suburbs and regions, take pride in what they do and what they contribute to the nation.

Manufacturing comprises 8 per cent of Australia's Gross Domestic Product (GDP) directly – but much more indirectly due to its relationship with other sectors. Australia's manufacturing businesses now deliver solutions, not just products.

Manufacturing more than pulls its weight and makes disproportionate contributions to exports and innovation. It is at the frontline of efforts to develop new skills and apply new technologies that the wider economy would not have without it. And it produces 29 per cent of Australia's exports, notwithstanding the battering it has taken from the high Australian dollar.

Our scale and remoteness from large global markets have exposed the fact that we are not generating the pool of innovative, globally-oriented, medium-sized firms that underpin dynamic, thriving economies.

Manufacturing is a diverse and dynamic sector, always subject to change.

The forces reshaping economies the world over play a large part in this, but these forces have been amplified by uniquely Australian factors.

While the high Australian dollar has been decisive, a set of compounding pressures – an economy-wide productivity slump, rising energy and other costs, a tougher competitive environment and slowing demand – have left many parts of manufacturing doing it tough.

Manufacturing lost 106,775 jobs in the last four years (2007-08 to 2011-2012). And the reality for many is that it will get worse before it gets better. The Commonwealth projects another 85,600 jobs may be lost in the next five years, and there is a real risk that the impact will be even greater than this.

The high dollar has made business harder for manufacturing exporting and import-competing firms. However, while competitiveness of Australian manufacturing has declined with the high dollar, it also has strengths and opportunities.

Australia has strong and sustainable comparative advantages in low-medium technology areas and we are innovators in these industries. How we compete and innovate in these sectors matters far more for policy than whether we are strong in 'high technology' industries.

Our high technology sector is important, but it makes up a relatively small proportion of manufacturing. In high-technology manufacturing industries, prospects are likely to be in specific niches, where there are many opportunities (eg, medical devices, scientific equipment, biomaterials³, mining equipment and aerospace).

Some opportunities stand out. Our suite of national strengths across resources, food, health, engineering and the environment – if we can harness them effectively – provide a platform for growth that is both uniquely Australian and globally significant.

The Australian economy

As a whole, the stories we hear of Australian prosperity and wellbeing speak of striking success: strong growth, low unemployment, a great quality of life. The non-government members of the Taskforce note that Australia's glass is 'more than half full'.

However, such stories can seem a long way from the experiences of many people and businesses in manufacturing, particularly in a patchwork economy that remains too narrowly based on a few industries in a few regions. The fundamental problem is that our economy is too *narrowly based*.

The strategy proposed in this report is premised on a simple proposition: that Australia's future will be brighter with a broad-based national economy, with prosperity built on more than a few industries in more than a few regions. A portfolio of industry strengths and capabilities is vital for the long-term health of the economy and the nation. Portfolio theory tells us that a broad-based national economy is one that is stronger, more resilient and more innovative.

Large nations develop broad-based economies by understanding the industry and region specific dimensions of its traded industries. Australia has the basis of many sources of regional specialisation in areas of comparative

advantage. The resources boom has masked the fact that Australia has neglected some key underlying drivers of innovation and, as a result, has seen our productivity growth decline and our competitiveness erode.

As Treasury Secretary Martin Parkinson has argued:

“We do ourselves, and the nation, a disservice if we target reform efforts only on the same areas as we have in the past. It is in the areas we have not yet focused on that the largest gains are most likely.”⁴

We need a new approach, one that recognises the productivity and competitiveness challenge for what it is – one increasingly based on innovation for global markets, one that leverages Australia’s broad portfolio of comparative advantages, and one that leverages a distinctly Australian knack for practical problem solving.

While such a practical focus may sound unexciting, Australia finds itself with a set of economic opportunities that no other nation on earth can match.

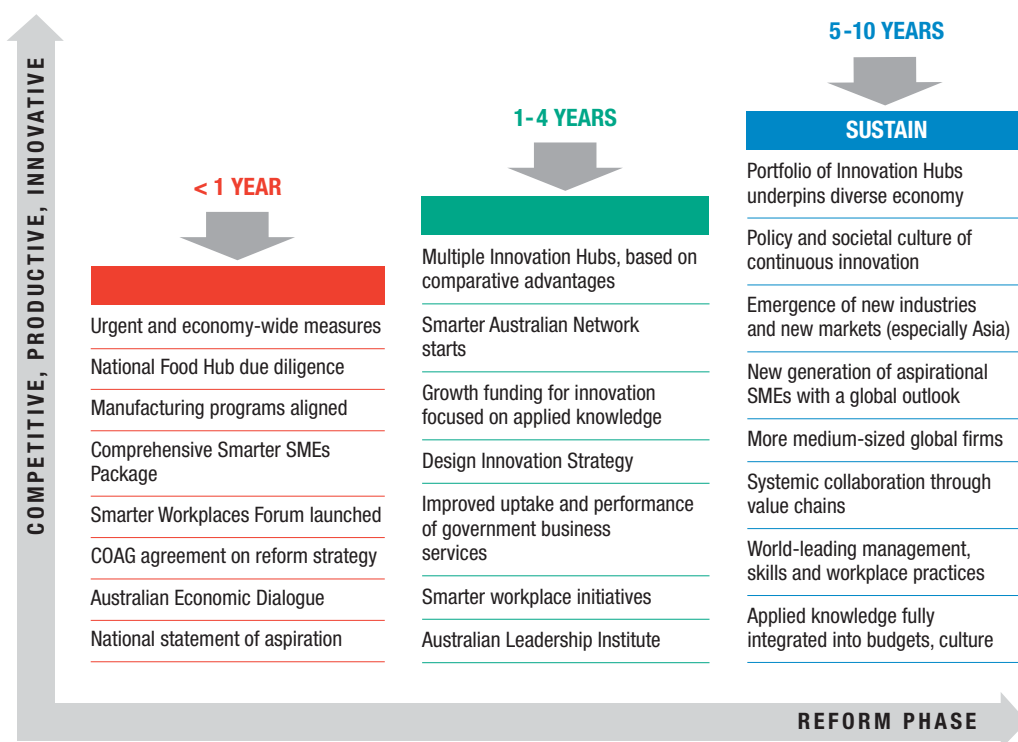
Next steps

The strategy proposed – ***Smarter Manufacturing for a Smarter Australia*** – demands political, policy and industry leadership. For greatest impact, there is a need for that commitment to be shared among stakeholders, and a clear sense of the road ahead.

Figure 1.2 proposes a roadmap and timeline for the reforms proposed in this report.

Figure 1.2

SMARTER MANUFACTURING FOR A SMARTER AUSTRALIA – ROADMAP



The non-government members of the Taskforce indicate their desire to continue to work with government in this process, to realise the potential of ***Smarter Manufacturing for a Smarter Australia***.

Key concepts

This report adopts the definitions of manufacturing and innovation proposed by the report of the Future Manufacturing Industry Innovation Council (FMIIC).⁵

The FMIIC defines manufacturing as:⁶

“... the full cycle of activities from research and development, through design, production, logistics and services, to end of life management ...”

The FMIIC defines innovation as:

“ ... the implementation of new or significantly improved products, operational processes, marketing methods or organisational methods in business practice, workplace organisation or external relations. These innovations can be new to the firm/educational institution, new to the market/sector or new to the world.”

The definition of innovation is not one that is well understood, as it is often confused with invention.

Figure 1.3 identifies some critical distinctions: innovation must add value in its application, as determined by consumers (including at the societal level) and requires a broad set of capabilities (not just science).

Figure 1.3
INVENTION AND INNOVATION

Source: Michael Porter in 'Clusters of Innovation: Foundations of US Competitiveness', p.ix; also see Roger Martin's summary at http://www.rotman.utoronto.ca/rogermartin/Globe_June2010.

INVENTION	INNOVATION
New-to-the-world discovery or creation	Product, service or process that creates new value for customers
Driven primarily by inventor curiosity or research interest	Driven primarily by desire to add consumer, industry or societal value
Value defined by uniqueness	Value defined by practical outcomes
Based primarily on scientific skills	Based on a broad set of strategic, managerial, design, marketing and technical skills

This concept of innovation is particularly important in understanding the implications of an agenda that is about the application – rather than just creation – of knowledge.

Background to this report

TERMS OF REFERENCE

The Prime Minister's Taskforce on Manufacturing has been asked to:

- Establish a shared vision for the future of the manufacturing sector.
- Co-ordinate and catalyse the work occurring across the manufacturing sector and Commonwealth to respond to the immediate challenges of a high exchange rate, technological change and global competition and trading conditions; provide advice on how best to leverage and co-ordinate existing Commonwealth and State Government policies and programs, and make further recommendations to capture at a national and regional level the opportunities arising from the Asian Century and respond to its challenges, including steps to address:
 - the global trends in manufacturing to 2020 and beyond, especially in terms of emerging markets and technologies and opportunities for value adding to our agricultural and energy and resources sectors;
 - the management and workforce skills required to build capability, drive productivity and increase innovation in the sector;
 - science and technology, investment and other firm capability requirements needed for 2020 and beyond;
 - the opportunities available from clean energy and sustainable growth;
 - the opportunities for new business creation and any barriers to the development of new businesses in Australia;
 - regulatory and other government-induced barriers to competitiveness;
 - the productivity of the sector as a whole, and within sub sectors, assessed against international performance;
 - the further export potential of Australian manufacturers into Asia;
 - creating international linkages to underpin integration into global production chains.
- Provide advice on building closer linkages and collaboration between industry and the research community, domestically and internationally, to assist to transform manufacturing through the application of science and technology and create international science and technology linkages to underpin integration into global production chains.

ABOUT THIS REPORT

This is a report of the *non-government members of the Prime Minister's Manufacturing Taskforce*.

The report proposes specific policy directions to address both the immediate and underlying challenges facing Australian manufacturing. It reflects the diversity of views among non-government members of the Taskforce and seeks to offer one coherent framework for the Commonwealth Government's (the Commonwealth) consideration.

The report draws heavily on a series of discussion papers and reports completed for the Commonwealth on future trends in manufacturing and high-performing workplaces.

The more significant of these warrant specific mention:

Australia's Manufacturing Future, report prepared by Professors Roy Green and Göran Roos for the Prime Minister's Manufacturing Taskforce.

Leadership, culture and management practices of high performing workplaces, Society of Knowledge Economics, October 2011.

Manufacturing Trends to 2020: A Foresighting Discussion Paper, Future Manufacturing Industry Innovation Council, September 2011.

Numerous organisations, government agencies and individuals contributed to the deliberations of the Taskforce and to the development of this report. This involved a number of prepared papers and nearly 70 separate Secretariat consultations.

The title of the report, *Smarter Manufacturing for a Smarter Australia*, reflects both the challenge facing manufacturing and the role it plays within the wider economy.

SECTION

1 introduces the Taskforce terms of reference, key definitions and provides an overview of the key themes and proposals of the non-government members of the Taskforce.

SECTION

2 assesses the position, pressures and prospects of Australian manufacturing, finding the risk of further job and capability losses, eroding competitiveness, but also recognising the diverse opportunities before the sector.

SECTION

3 explores the position, pressures and prospects of the Australian economy, finding that today's prosperity disguises patchwork pressures and a 'lost decade' of reform that has slowed productivity growth and eroded competitiveness.

SECTION

4 outlines the policy framework that underpins this report, informed by analysis of immediate and long-term policy challenges and international experiences, and proposing a strategy to build a broad-based national economy.

SECTION

5 proposes five priority policy directions to tackle immediate pressures, reignite economy-wide productivity and reduce costs, expand collaboration, improve SME competitiveness, and drive cultural change in workplaces.

SECTION

6 proposes next steps to ensure the reform agenda is progressed, momentum is sustained and progress monitored.

SECTION 1 INTRODUCTION AND OVERVIEW – FOOTNOTES

3. Some of these are grounded in a high value added forest based cellulose value chain.
4. <http://www.treasury.gov.au/PublicationsAndMedia/Speeches/2011/Sustaining-growth-in-living-standards-in-the-Asian-Century>.
5. *Manufacturing Trends to 2020: A Foresighting Discussion Paper*, Future Manufacturing Industry Innovation Council, Oct 2011.
6. Institute for Manufacturing (2006), *Defining High Value Manufacturing* University of Cambridge. See <http://www.ifm.eng.cam.ac.uk/cig/documents/DefiningHVM.pdf>.

MANUFACTURING: POSITION, PRESSURES AND PROSPECTS

SECTION SUMMARY

This section assesses the position, pressures and prospects of Australian manufacturing. Australian manufacturers are diverse. It's almost one million workers, mostly in our suburbs and regions, who take pride in what they do and what they contribute to the nation.

Manufacturing comprises 8 per cent of Australia's GDP directly, but much more indirectly due to its relationship with other sectors. Australia's manufacturing firms deliver solutions, not just products.

Manufacturing more than pulls its weight and is export and innovation intensive. It is at the frontline of efforts to develop new skills and apply new technologies that the wider economy would not have without it.

And it produces 29 per cent of Australia's exports, despite the battering it has taken from the high Australian dollar. Our scale and remoteness from large global markets have exposed the fact that we are not generating the pool of innovative, globally-oriented medium-sized firms that underpin dynamic, thriving economies.

Manufacturing is a diverse and dynamic sector, always subject to change. The forces reshaping economies the world over play a large part in this, but these forces have been amplified by uniquely Australian factors.

While the high Australian dollar has been decisive, a set of compounding pressures – an economy-wide productivity slump, a tougher competitive environment and slowing demand – have left many parts of manufacturing doing it tough.

Manufacturing lost 106,775 jobs during the four years 2007-08 to 2011-2012. And the reality for many is that it will get worse before it gets better. The Commonwealth projects another 85,600 jobs may be lost in the next five years, and there is a real risk that the impact will be even greater than this.

While the export competitiveness of Australian manufacturing has declined due to the high dollar, it retains many strengths and opportunities. Australia has strong and sustainable comparative advantages in low-medium technology areas – we are innovators in these industries. How we compete in these industries matters far more for policy than whether we are just strong in 'high technology' industries.

In high-technology manufacturing industries, prospects are likely to be limited to specific niches, although there are many such opportunities (eg. medical devices, biomaterials, mining equipment and aerospace).

Some opportunities stand out. Our suite of national strengths across resources, food, health, engineering and the environment – if we can harness them effectively – provide a platform for growth that is both uniquely Australian and globally significant.

Manufacturing matters

Manufacturing is a critical component of any advanced economy.

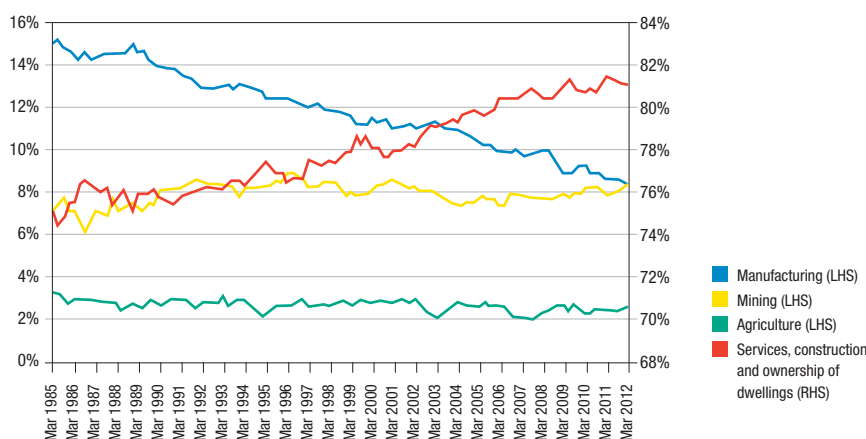
Australian manufacturers add value to the output of our extractive, agricultural and forestry industries. They smelt and refine metals and petroleum products, make paper products and furniture, and process a wide variety of meat, dairy and grain products. They produce specialised technical textiles and high end fashion garments. Our manufacturers make building materials that go into our engineering and construction industries.

Australian manufacturers make machinery and equipment ranging from industrial fans and air conditioners, mining and agricultural equipment, cars, to highly sophisticated scientific and medical equipment, and new materials.

Australia's manufacturing sector, while growing in absolute terms over the past 25 years, has declined as a share of economic output,⁷ as shown in Figure 2.1.

Figure 2.1
INDUSTRY GROSS VALUE ADDED
March quarter 1985
– March quarter 2012

Source: ABS 5206.0 Australian National Accounts: National Income, Expenditure and Product, Table 6. Gross Value Added by Industry, Chain volume measures, seasonally adjusted data.



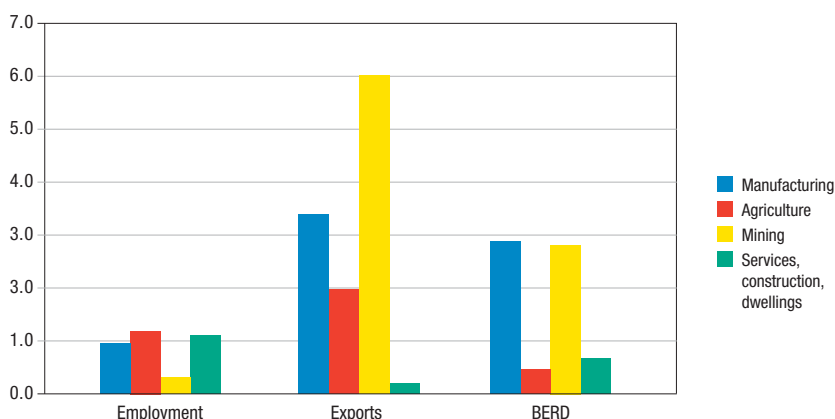
The Organisation of Economic Cooperation and Development (OECD) ⁸ notes that structural change in advanced economies often sees output shift from agriculture to manufacturing to services as economies develop. This is often used to portray the notion that manufacturing is of less and less consequence to Australia's economic future. However, the contribution of manufacturing to output – 8 per cent of the economy – significantly understates its contribution to our economy and society.

Manufacturing makes a disproportionate contribution to exports and innovation.

Figure 2.2 shows the manufacturing share of jobs, exports and R&D relative to its share of industry value added.

Figure 2.2
MEASURING IMPACT:
RATIO OF JOBS, EXPORTS
AND R&D TO VALUE ADDED

Source: Gross value added: ABS 5206.0 Australian National Accounts: National Income, Expenditure and Product, Table 33. Industry Gross Value Added, Chain volume measures, Annual Total gross value added at basic prices Employment: ABS 6291.0.55.003 Labour Force, Australia, Detailed, Quarterly, Table 4 2011-12 average Exports: ABS 5368.0 International Trade in Goods and Services, Australia, TABLE 32a. MERCHANDISE EXPORTS, Industry (ANZSIC 2006), FOB Value original, current prices Business expenditure on R and D: ABS 81040D0006_200910 Research and Experimental Development, Businesses, Australia, 2009-10.



This ability to create jobs alongside growth, to penetrate new global markets and to compete through innovation is critical to Australia's economic future as it is how we maintain consensus for change while also capturing its benefits.

For example, while the output of Australian mining now exceeds that of manufacturing, manufacturing still employs almost four times as many people, and does so right across the country.

Many of the practical skills underpinning Australia's economy, from traditional technical skills to advanced engineering capabilities, emanate from manufacturing.⁹ Manufacturing accounted for 35 per cent of all traditional trade apprenticeship completions in 2009.¹⁰ Australia's fastest growing advanced services export? Not financial, legal or accounting services, but engineering services.

Manufacturing contributed 25 per cent of Australia's R&D. It is how leading edge technologies enter our economy and how we capture value from our national research effort. And manufacturing contributes 29 per cent of our national exports, a direct confirmation of comparative advantage.

What is also not well understood is that large parts of the services economy would not exist without manufacturing. When a manufacturing plant opens, it attracts local services. When a supermarket opens, it doesn't attract a manufacturing plant.

Professor Roos estimates that manufacturing and its related services contribute not 10 per cent but more like 30 per cent of GDP in advanced economies. This explains why economies such as Sweden manage to combine high value added, export oriented manufacturing and thriving advanced business services.¹¹

Manufacturing helps us meet new demands and serve new markets – the health and care needs of ageing populations, the system and materials needs of cities and economies wanting smarter and cleaner growth, and our security needs in a volatile world.

As the distinction between manufacturing and services is blurring rapidly and the focus shifts to integrated solutions provided through global value chains, manufacturing is an indispensable capability.

Similarly, manufacturing has strong linkages with our natural resource strengths across mining, energy, agriculture and forestry, areas of comparative advantage that point the way to a uniquely Australian proposition in the Asian Century.

The contribution of manufacturing to Australia's economy matters. And it will matter even more in the future, irrespective of what happens to its share of total output.

AUSTRALIAN MANUFACTURING: SMALL AND REMOTE

For all of the above, Australian manufacturing faces the reality that it is a sector that includes a disproportionate number of small firms, many of which operate in small markets.

Australian manufacturing's ability to lift competitiveness, productivity and innovation and thereby generate more jobs throughout the economy, is partly constrained by the hard market realities of small firms in small markets. More than 500,000 Australians work for small and medium sized manufacturing businesses. Around 50,000 manufacturing SMEs employ less than 200 people.

While not well captured in statistical comparisons and not always well reflected in policy prescriptions, the impacts of scale and geography are significant for many manufacturing industries, such as chemicals, rubbers and plastics, and automotive.

Australia's small and dispersed internal markets and remoteness from larger markets, explain why Australian manufacturing firms are small by global standards. This is a systemic constraint that makes it harder to penetrate global value chains within which much of manufacturing's value is created.

An industry structure featuring disproportionately small firms means fewer economies of scale and lower productivity.

Figure 2.3 reveals the scale challenge facing Australian manufacturing, comparing average firm size against Germany and the United States of America (USA).

The impact of scale is intricately related to Australia's remoteness, which has in the past drastically reduced our opportunities for trade, knowledge transfer and relationship building.

Figure 2.4 highlights that the OECD has estimated the price we have paid for this remoteness to be greater than any other developed nation – at over 10 per cent of GDP – although it must be noted that this covered the period to 2004.

Figure 2.3

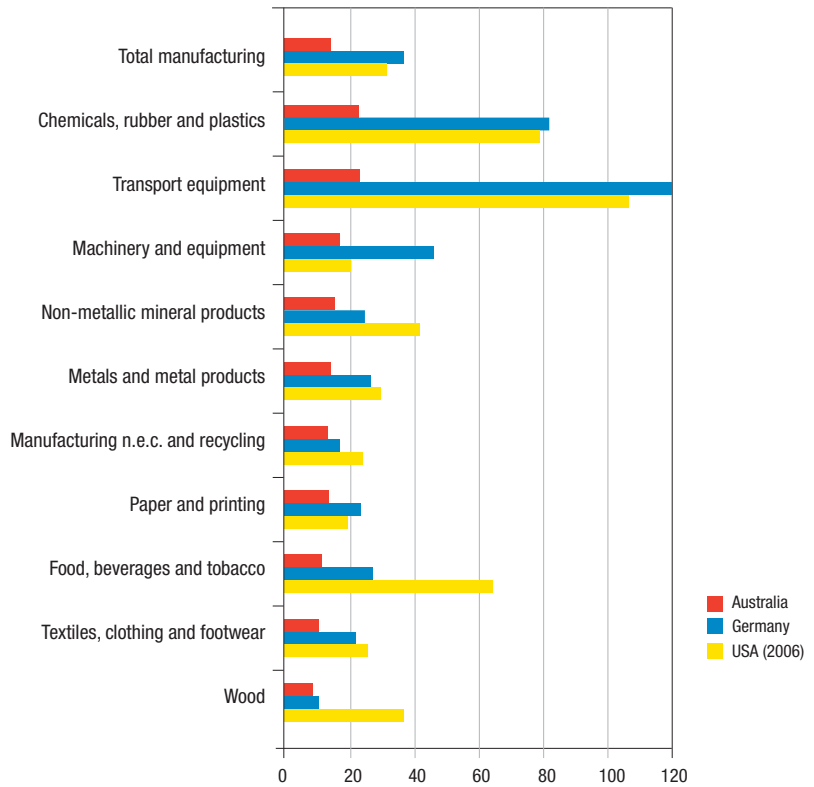
AVERAGE SCALE IN MANUFACTURING

Australia, Germany and United States – 2008

Average number of persons engaged per manufacturing enterprise

Note: Number of employees instead of number of persons engaged for USA.

Source: OECD Structural Analysis Database (STAN); Australian Bureau of Statistics (ABS) for data on Australia



The OECD explains the significance of economic geography for policy:¹²

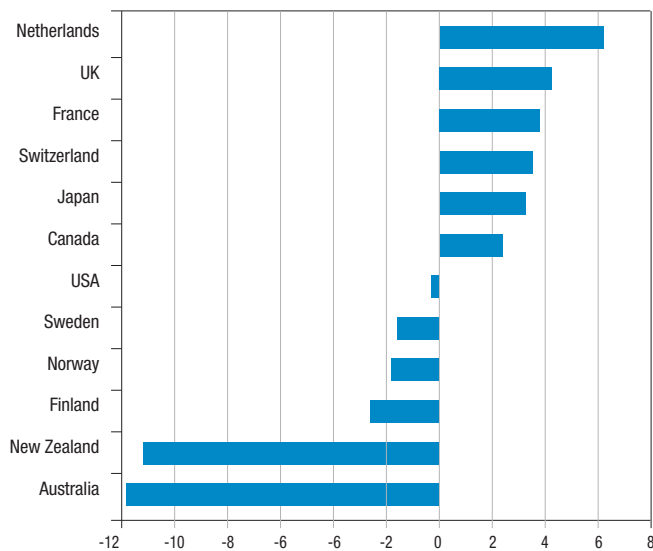
“These effects imply that GDP per capita and productivity gaps cannot on their own be used as a measure of the unfinished business of policy.”

Figure 2.4

IMPACT OF PROXIMITY ON GDP

% of GDP – 1995-2004

Source: OECD (2008), *Economic Geography and GDP Per Capita, in Economic Policy Reforms, Going for Growth, Paris.*



Evidence suggests that Australia’s geographic isolation is likely to reduce the impact of traditional R&D investment, and increase the relative importance of urban concentration and foreign direct investment, relative to trade.¹³

Australia’s scale and remoteness challenge work against competition, innovation and export growth, and produce a unique industrial structure: large multinationals in resources and food, large domestic services oligopolies and a long tail of SMEs. They also help to explain why Australia is not generating the pool of innovative, globally oriented medium-sized firms that underpin dynamic, thriving economies.

Profile of Australian manufacturing

Australia's manufacturing sector is diverse. It comprises industries ranging from those producing commodity products such as some foods and beverages, and other simply transformed manufactures, to high precision, high value-add products including automotive and aerospace components, machine tools, medical devices, electronics, scientific instruments, advanced materials and pharmaceuticals.

Australia's manufacturing sector has grown steadily in absolute terms over the last decade, albeit at a slower rate than other sectors of the economy. This is partly because economic downturns hit manufacturing much harder than they hit the economy as a whole.

The comparative growth of industries within manufacturing has not been uniform. The sector is characterised by change and diversity as seen in Figure 2.5.

Figure 2.5
INDUSTRY GROSS VALUE
ADDED BY MANUFACTURING
INDUSTRY

	2000-2001 \$b	2010-2011 \$b	Average annual compound growth rate 2000-2001 to 2010-2011
Agriculture	25.2	30.9	2.1%
Mining	75.8	97.4	2.5%
Services, construction and dwellings	700.4	996.7	3.6%
Manufacturing consisting of:	100.8	107.6	0.7%
Food, beverage and tobacco products	22.7	23.6	0.4%
Textile, clothing and other manufacturing	12.3	6.6	-6.0%
Wood and paper products	8.4	7.6	-1.0%
Printing and recorded media	4.9	4.1	-1.8%
Petroleum, coal, chemical and rubber products	19.0	17.9	-0.6%
Non-metallic mineral products	4.0	5.6	3.6%
Metal products	17.0	22.7	2.9%
Machinery and equipment	16.2	19.6	1.9%
TOTAL	902.2	1,232.6	3.2%

Source: ABS Cat. No. 5206.0, industry gross value added, chain volume measures, annual.

MANUFACTURING EMPLOYMENT BY INDUSTRY

In May 2012 manufacturing employment stood at 953,300 people, a net fall of 2.4 per cent through the year. Manufacturing employment averaged 1,078,900 people in calendar year 2000 with almost all of the job losses occurring in the past four years.

By industry, employment trends vary widely and over the past decade, food, beverage and tobacco product, and primary metal and metal product have seen the strongest jobs growth as seen in Figure 2.6.

These are among the areas in which Australian manufacturing should continue to enjoy the advantage of access to high quality resources and efficient processing.

Over the past decade, very large job losses have been seen in textiles, clothing and footwear (TCF), pulp and paper, fabricated metal products, printing and furniture. Various, these losses have arisen in context of the appreciation of the Australian dollar, tail end of progressive tariff reductions, significant increases in the move to offshore production (to low wage economies) and ongoing technological change and industry restructuring. These trends have been steady, although transport equipment (automotive) has joined this list in the past five years.

Figure 2.6

**EMPLOYMENT
BY MANUFACTURING
INDUSTRY**

Source: ABS Cat. No. 6291.0.55.003
(original, detailed quarterly)

	Persons '000s May 2002	Persons '000s May 2012	Average annual change May 2002 to May 2012
Manufacturing, nfd	21.4	73.9	13.2%
Food product manufacturing	180.8	192.1	0.6%
Beverage and tobacco product manufacturing	23.8	30.8	2.6%
Textile, leather, clothing and footwear manufacturing	74.3	40.2	-6.0%
Wood product manufacturing	50.4	42.5	-1.7%
Pulp, paper and converted paper product manufacturing	27.4	17.5	-4.4%
Printing (including the reproduction of recorded media)	57.7	45.8	-2.3%
Employed total – petroleum and coal product manufacturing	10.6	11.1	0.5%
Basic chemical and chemical product manufacturing	52.1	38.2	-3.1%
Polymer product and rubber product manufacturing	48.3	37.8	-2.4%
Non-metallic mineral product manufacturing	41.2	39.8	-0.3%
Primary metal and metal product manufacturing	65.1	82.6	2.4%
Fabricated metal product manufacturing	95.9	51.3	-6.1%
Transport equipment manufacturing	95.5	83.0	-1.4%
Machinery and equipment manufacturing	129.4	117.9	-0.9%
Furniture and other manufacturing	84.0	48.9	-5.3%
TOTAL MANUFACTURING	1,057.7	953.3	-1.0%

MANUFACTURING EMPLOYMENT BY STATE/TERRITORY

Victoria accounts for the largest share of manufacturing employees in Australia (32.7 per cent) followed by New South Wales (28.5 per cent) and Queensland (17.9 per cent) as seen in Figure 2.7.

Over recent decades, much of manufacturing has shifted out of the high-cost areas of our major cities to the suburbs and regions as it, along with distribution functions, has been displaced by higher value business services. The regions most reliant on manufacturing jobs today are South East Melbourne, Ipswich, Western Sydney and the Goulburn-Ovens-Murray in northern Victoria. Most of these have high rates of unemployment, high reliance on income support and low levels of educational attainment. Only South East Melbourne stands out for high average productivity.

Figure 2.7

**MANUFACTURING
EMPLOYMENT BY
STATE
May 2012**

Source: ABS Cat. No. 6291.0.55.003
(original, detailed quarterly)

State	Manufacturing employment, May 2012 Quarter (persons)	Manufacturing share of total State/Territory employment May 2012 quarter	State/Territory share of total manufacturing employment in Australia May 2012 quarter
New South Wales – manufacturing	272.0	7.5	28.5%
Victoria – manufacturing	311.8	10.7	32.7%
Queensland – manufacturing	170.9	7.3	17.9%
South Australia – manufacturing	74.7	9.1	7.8%
Western Australia – manufacturing	101.8	7.9	10.7%
Tasmania – manufacturing	15.2	6.4	1.6%
Northern Territory – total	3.0	2.5	0.3%
Australian Capital Territory – manufacturing	3.9	1.9	0.4%
AUSTRALIA – manufacturing	953.3	8.3	100%

MANUFACTURING EMPLOYMENT BY SKILL LEVEL

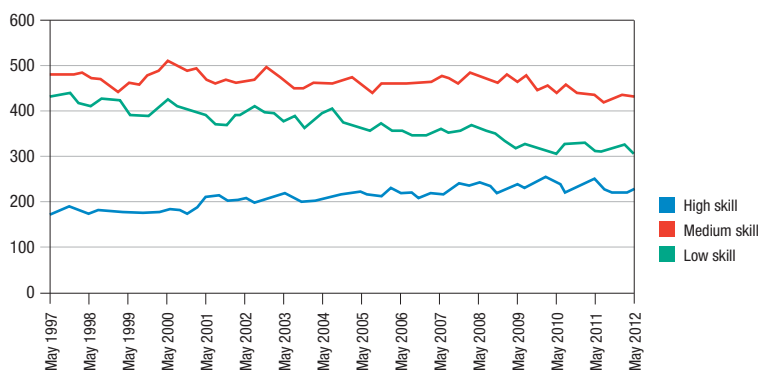
Manufacturing employs people at all skill levels. In the February 2012, 22 per cent of manufacturing workers were classified as 'high skilled', up from 19 per cent a decade earlier, as seen in Figure 2.8.

This increase in high skilled workers parallels a decline in lower skilled manufacturing workers.

Figure 2.8

MANUFACTURING EMPLOYMENT BY SKILL LEVEL

Source: ABS Cat. No. 6291.0.55.003 Note: High skill includes managers and professionals. Medium skill includes technicians and tradespersons, community and personal service workers, clerical and administrative workers and sales workers. Low skill includes machinery operators and drivers and labourers.



As is evident from Figure 2.8, low skilled workers are more likely to confront the pressures of change, while manufacturing employees who lose their jobs are no more or less likely to return to work than those in other industries overall. Low-skilled machinery operators and process workers in particular find it difficult. This reality is often exacerbated by a significant number of these workers having English as a second language or otherwise having poor English literacy skills.

With few of these workers holding post school qualifications, there is no way to sugar coat it: for many people, economic change means losing their jobs, their livelihoods and their ability to provide for themselves and their families. Change hurts.

Pressures on Australian manufacturing

The non-government members of the Taskforce acknowledge that structural change is not new. In any well-functioning economy, businesses expand and contract at different rates, and workers move from one job to another. In a typical year, around 300,000 businesses are started and a similar number are closed. Around two million people start new jobs and leave old ones, and around half a million workers change industries.¹⁴

The challenge facing manufacturing, however, involves more than structural change.

While the biggest factor has been the high Australian dollar, a compounding set of factors – rising living costs and weak economy-wide productivity growth – have made Australia a ‘high cost economy’ by international standards. This is occurring at the very time that low cost competitors are emerging, and that established manufacturing centres in Europe and the USA are growing stronger with favourable exchange rate movements and new competitive advantages. The result is a serious erosion of our international competitiveness.

Further to this, weak consumer demand abroad and at home has put pressure on many of our manufacturers, most particularly SMEs. Many have not survived the pressure and many more are barely keeping their heads above water.

As highlighted in Figure 2.9, both manufacturing production and new orders have been hit hard by the factors discussed above and there is a real sense of urgency within many parts of the industry.

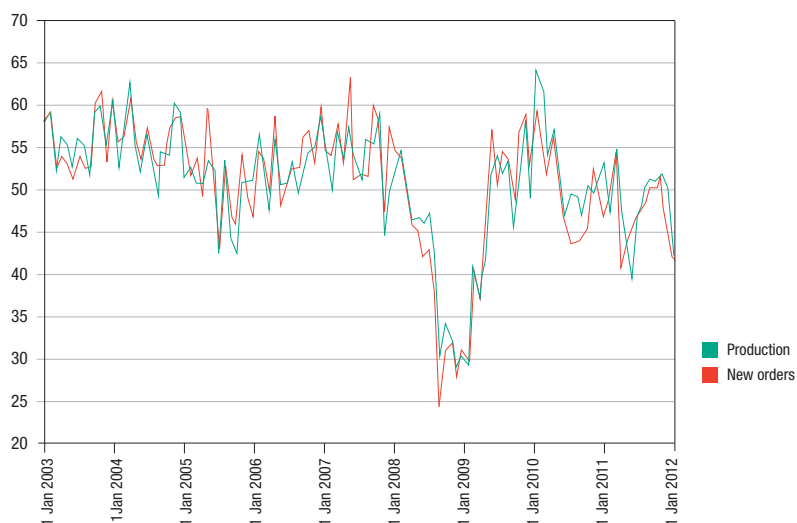
HIGH DOLLAR HAS BEEN THE KEY TO ERODING COMPETITIVENESS

The factor most impacting local manufacturing is the strength of the Australian dollar.

It has eroded the profitability of export and import-competing goods, and has made inbound investment a much more expensive proposition. Local arms of multinational enterprises report that it is harder to secure internal capital allocations.

Figure 2.9
AUSTRALIAN PERFORMANCE OF
MANUFACTURING INDEX

Source: Australian Performance of Manufacturing Index (PMI)[®], Australian Industry Group, May 2012.



The extent of the appreciation of the currency has meant that:

- Some exports have become entirely unprofitable and some domestic markets are facing import competition for the first time.
- In other markets there is a much more intense level of import competition than was previously the case.
- Within multinational corporations, even in areas of traditional specialisation, Australia is being overlooked as business units in other countries are more readily able to satisfy hurdle rates of return.

At the same time, the stronger dollar has lowered the cost of imported inputs, making it substantially cheaper to invest in sophisticated foreign capital equipment and knowledge enhancing services, and has made investment abroad from an Australian base more attractive.

Since the rebound of the currency following the Global Financial Crisis (GFC), expectations of it remaining high have become embedded in business planning more than was the case when the dollar breached parity with the \$US prior to the GFC.

While the dollar is the largest factor facing domestic manufacturers, it is only one of a series of factors that are cumulatively exerting pressures on manufacturing firms.

COSTS HAVE RISEN AND WE HAVE SEEN POOR PRODUCTIVITY GROWTH

Firms and households have faced rising costs on a number of fronts.

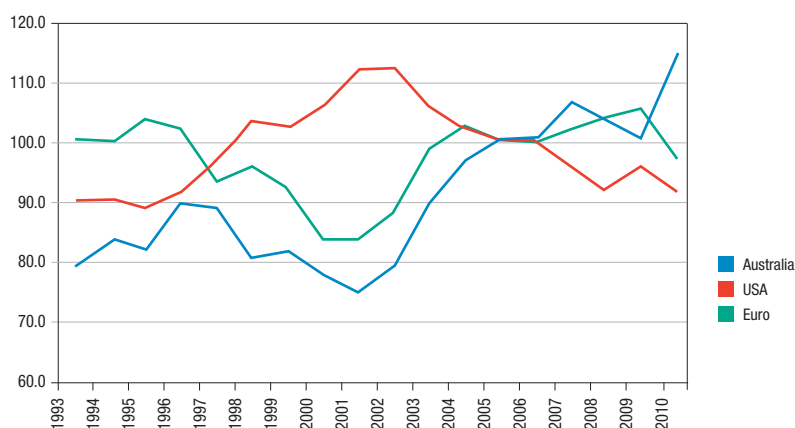
Rising energy costs have made inroads into a traditional competitive advantage for Australian manufacturers, and raised living costs for workers. Domestic interest rates higher than those abroad have made it more expensive for Australian firms and households to borrow relative to their overseas counterparts.

These cost pressures have combined with the strong Australian dollar to seriously erode the international competitiveness of Australian manufacturing, as highlighted in Figure 2.10. This shows the real exchange rate for Australian manufacturing compared to the euro zone nations and the USA. The loss of our significant 1990s advantage and the handicap we now carry is clearly shown.

While real wage growth has not appeared excessive in the context of a growing economy, Australia's low economy-wide productivity growth has contributed to the erosion of the international competitiveness of Australian manufacturing. Within manufacturing itself, productivity growth has been much lower than many of our competitors.

Figure 2.10
MANUFACTURING COMPETITIVENESS
Australia, USA, Euro ¹⁵

OECD manufacturing competitive index: Australia v USA and Euro area 1993-2010 (Index 2005 = 100 where an increase in the index value represents a decline in competitiveness)



The resulting rise in unit labour costs is shown in Figure 2.11.

The impacts of the high dollar, slowing economy-wide productivity growth and cost increases have made Australia a ‘high cost economy’ by international standards.

EMERGENCE OF TOUGHER COMPETITION

The emergence of Australia as a ‘high cost economy’ has coincided with the massive expansion of global manufacturing capacity in emerging economies.

China has now emerged to challenge the USA as the world’s largest manufacturing nation, has reduced global prices and radically disrupted global supply chains. This has affected manufacturing centres around the world.

Governments of competitor nations play an active role in the competitiveness of their domestic manufacturing industries. This involves subsidies to inputs, exports, and foreign acquisitions, exchange rate intervention, IP policies, procurement advantages and market restrictions.

Australia’s economic policy debate is dominated by a level playing field mindset that is simply not shared across the region in which we compete. As a result, Australian businesses find they are competing not just with other businesses, or even wider changes, but also with other governments’ policies.¹⁷

Figure 2.11
PRODUCTIVITY AND UNIT LABOUR COSTS
Average annual change – 2000-2010 ¹⁶

Source: US Bureau of Labor Statistics, International Comparisons of manufacturing productivity and unit labour cost trends. The concept of employer labour costs shown in the table is explained in the footnote at the end of this section.

Country	Hourly labour productivity	Unit labour costs (national currency)	Real hourly compensation (national currency)
Taiwan	7.4	- 4.5	1.7
Japan	3.3	- 3.2	0.3
Singapore	3.2	- 1.7	- 0.3
USA	5.2	- 1.4	1.3
Sweden	4.4	- 1.0	1.6
Finland	4.5	- 1.0	2.0
Czech Republic	6.7	- 0.9	3.2
Germany	1.8	0.2	0.5
Netherlands	2.8	0.5	1.2
France	2.5	0.6	1.4
Belgium	1.8	1.0	0.7
Denmark	3.1	1.1	2.1
UK	3.0	1.4	1.6
Korea, Republic of	6.6	1.4	4.9
Canada	0.9	1.6	0.4
Norway	2.7	2.2	2.9
Spain	1.5	2.2	1.0
Australia	1.9	2.5	1.3
Italy	- 0.1	3.2	0.9

This uneven playing field is exacerbated by the integration of global value chains, and greater specialisation within them. This is forcing many manufacturers to find productivity gains through innovation, and forcing global firms to determine whether an Australian presence can be justified.

WEAKENING PRIVATE AND PUBLIC DEMAND HAS MADE IT HARDER

Manufacturing has been adversely affected by not only the global financial crisis but also by a slowdown in related areas of domestic demand such as residential and commercial construction.

In addition, the failure of Commonwealth and State Governments to provide clarity and coherence in the planning and pipeline of large-scale government infrastructure continues to undermine the impact of such investments.

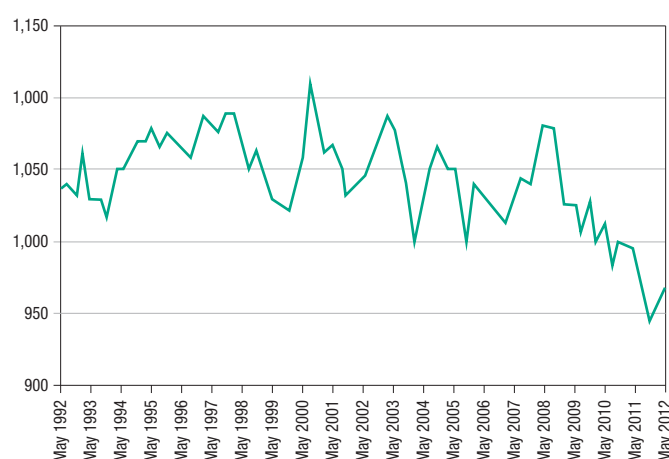
ASSESSING THE DAMAGE: URGENCY OF THE CHALLENGE

This compounding set of forces has pushed many businesses to the brink and some beyond it.

One out of every ten manufacturing jobs disappeared over the last four years (106,775 jobs lost between 2007-08 and 2011-2012), as seen in Figure 2.12.

Figure 2.12
MANUFACTURING EMPLOYMENT
'000s
May 1992 – May 2012

Source: ABS Cat 6291.0 Labour Force, Australia, Table 6, May 2012.



The Commonwealth projects that Australian manufacturing may lose another 85,600 jobs over the next five years. Having entered the GFC with a tight labour market, benefited from early stimulus and initially avoided large job losses, manufacturing is now facing a new and larger wave of job shedding.

Many firms, and the supply chains they support, are only just holding on. This poses an immediate challenge to consider how capabilities built up over many years will not be lost and workers displaced successfully reintegrated into the economy.

Prospects for Australian manufacturing

While current pressures are severe, the non-government members of the Taskforce stress their confidence and conviction that Australia's manufacturing sector can make a large and growing contribution to national prosperity if we get our big choices right.

Decline is projected for numerous manufacturing sub-sectors. Transport equipment is projected to record the largest decline in terms of job numbers (down by 14,300), as the automotive industry struggles with supply chains shaped by a tilted playing field.

Figure 2.13

PROJECTED EMPLOYMENT GROWTH BY MANUFACTURING SECTOR

in the five years to 2016-2017
 – ranked by projected change in '000s of people

Source: DEEWR Industry Employment Projections 2012 Report

Industry	Employment level Nov 2011 ('000s)	Employment growth 2011-2012 to 2016-2017 ('000s)	5-year growth to 2016-2017
Manufacturing	945.6	85.6	9.0%
Primary metal and metal product manufacturing	98.8	5.8	5.8%
Petroleum and coal product manufacturing	12.5	1.3	10.4%
Food product manufacturing	182.5	1.0	0.5%
Beverage and tobacco product manufacturing	37.4	0.7	1.8%
Basic chemical and chemical product manufacturing	38.7	-2.3	-6.0%
Pulp, paper and converted paper product manufacturing	16.1	-3.8	-23.6%
Printing (including the reproduction of recorded media)	41.0	-4.3	-10.5%
Non-metallic mineral product manufacturing	38.1	-4.9	-12.8%
Polymer product and rubber product manufacturing	35.0	-6.0	-17.3%
Machinery and equipment manufacturing	106.5	-8.3	-7.8%
Wood product manufacturing	38.7	-9.7	-25.0%
Textile, leather, clothing and footwear manufacturing	39.3	-9.8	-25.0%
Fabricated metal product manufacturing	59.5	-12.4	-20.9%
Furniture and other manufacturing	65.2	-13.4	-17.6%
Transport equipment manufacturing	81.1	-14.3	7.2%
ALL INDUSTRIES	11,456.5	829.3	7.2%

Figure 2.13 provides a breakdown of projected employment growth.

While the projections in Figure 2.13 highlight where the pressure for adjustment and change are likely to be felt most acutely – such as fabricated metals, automotive, TCF, and wood and paper products – they also point to where some of our opportunities seem to lie, most notably in those areas that leverage our natural resource advantages.

Interestingly, this includes some of those industries under most pressure, including the wood products industry. However, projections are just that, and the past five years have shown us the folly of assuming that we know how events will unfold.

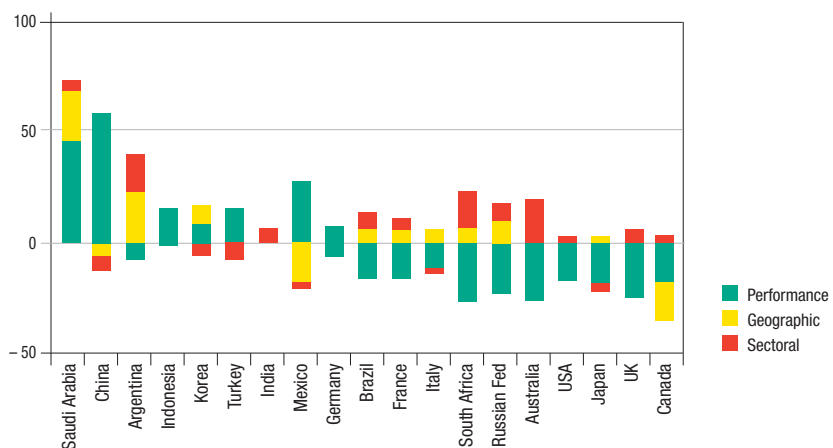
A more useful approach is to consider our underlying competitiveness, which will matter under a variety of possible scenarios. To this end, measures of export competitiveness, productivity and innovation matter most, but all must be seen in the context of Australia's unique comparative advantages.

Figure 2.14

CONTRIBUTION OF STRUCTURAL AND PERFORMANCE EFFECTS TO EXPORT GROWTH IN MANUFACTURING

2005 - 2010

Source: OECD 2012, Australian manufacturing in the global economy, study for the Australian Government, Department of Industry Innovation, Science, Research and Tertiary Education, Box 5.



EXPORT COMPETITIVENESS

'Shift and share' analysis by the OECD identifies the drivers behind Australia's export performance. Whether it is derived from Australia's specialisation in products for which world demand is high (sectoral contribution), from an orientation towards markets where demand for exports is high relative to world demand (geographic component), or the result of pure export competitiveness (performance).

Australia, like other developed economies, has experienced a significant loss of 'pure' export competitiveness. This effect appears to have impacted some time after 2005.

Notwithstanding this loss of export competitiveness, Australia's manufactured exports increased to \$42.1 billion in 2011, just 0.5 per cent below its previous peak in 2008. Since 2000, manufactured export volumes have risen by \$7.8 billion, or 22.6 per cent.

The largest increase in real exports over the decade was in scientific instruments (largely medical), and medicinal and pharmaceutical products. Machinery, chemicals, paper products and fertilisers also grew strongly. Exports dropped off significantly for iron, steel and non-metallic mineral manufacturers.

Figure 2.15 demonstrates the diversity and the dynamism of Australian manufacturing.

Figure 2.15
SELECTED AUSTRALIAN MANUFACTURED
GOODS EXPORTS
 Change from 2002 to 2012, annualised from
 June quarter to March quarter, chain volume
 measures – \$m

*Source: 5302.0 Balance of Payments and International Investment
 Position, Australia, Table 103. Merchandise exports, chain volume
 measures, March quarter 2012.*

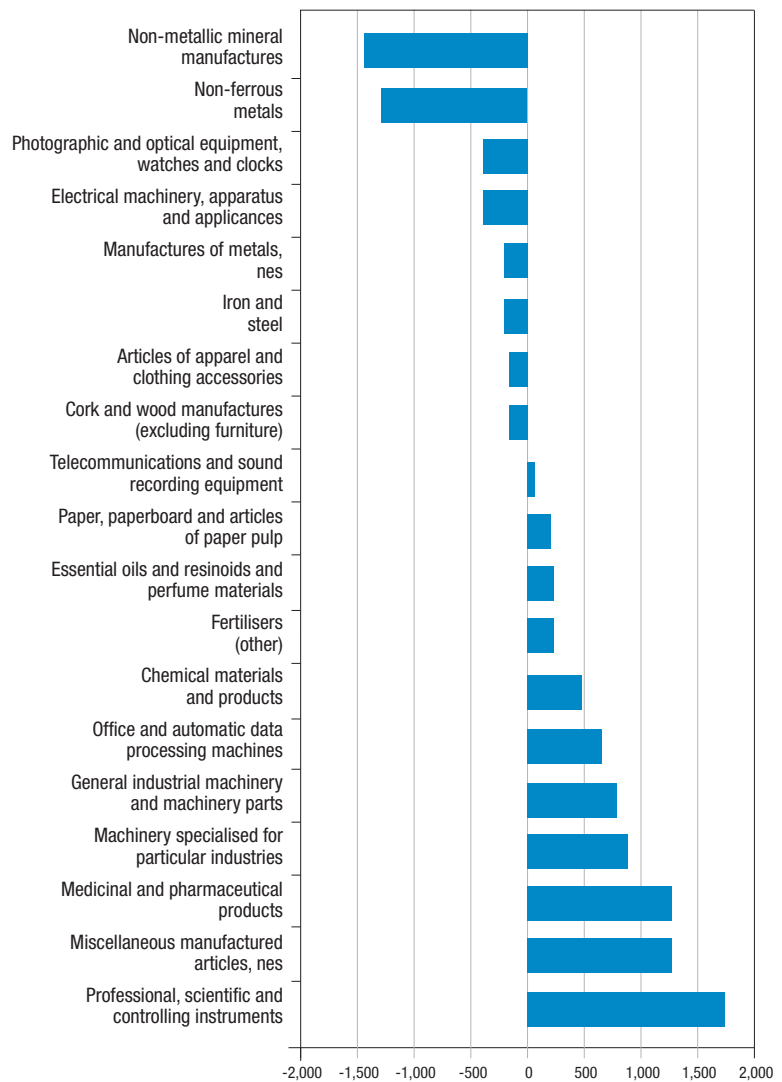
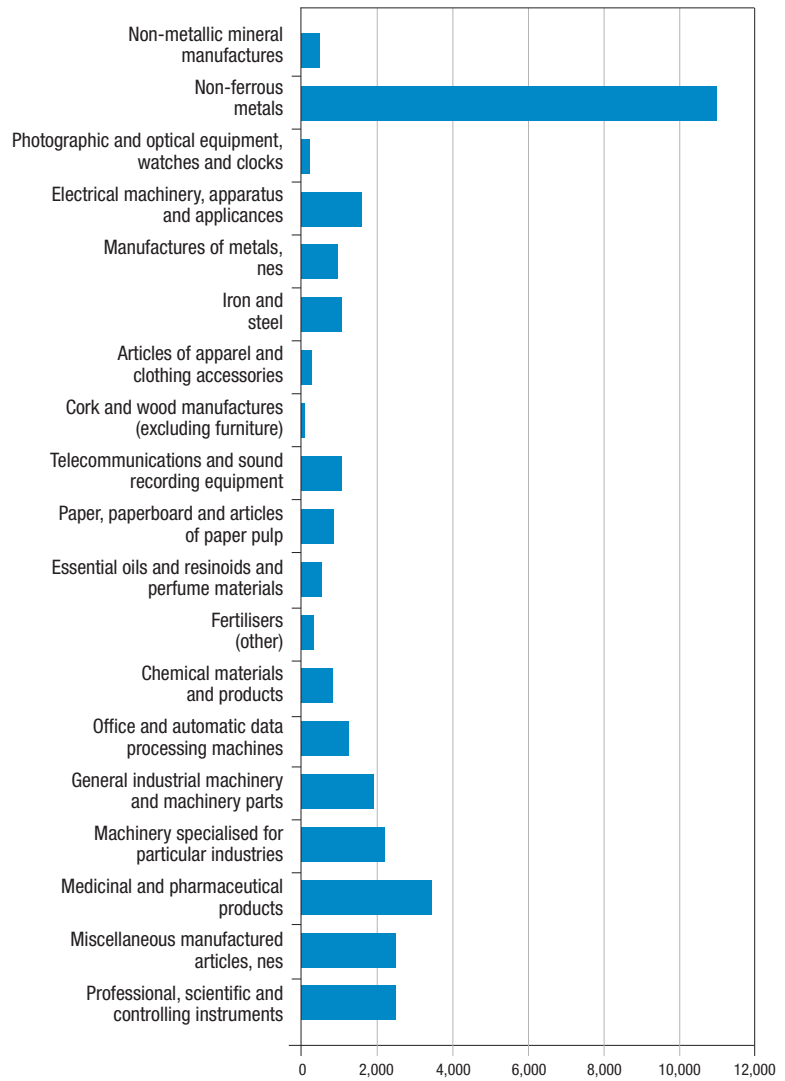


Figure 2.16

SELECTED AUSTRALIAN MANUFACTURED GOODS EXPORTS

Year to March quarter 2012 – chain volume measures – \$m

Source: 5302.0 Balance of Payments and International Investment Position, Australia, Table 103. Merchandise exports, chain volume measures, March quarter 2012



Productivity and innovation

Australian manufacturing has exhibited variable productivity growth over the past 15 years, with metals and minerals products (more than in other nations), and scientific instruments (less than in other nations), exhibiting strong productivity growth, while areas such as food, wood and TCF experienced productivity decline. A frequently made statement of Australian manufacturing is that its industries are not technologically advanced. This reflects a common misunderstanding.

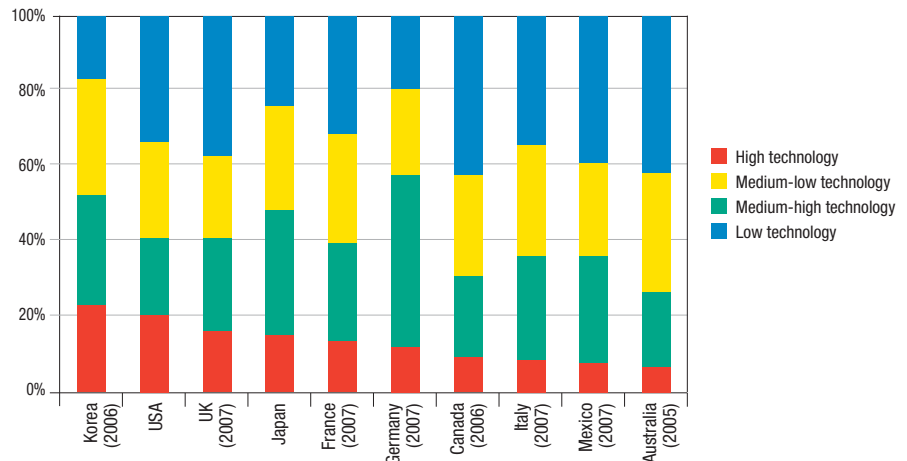
What is correct is that Australia has a larger presence in sectors classified as low and medium-low technology, as seen in Figure 2.17.

Figure 2.17

VALUE ADDED IN MANUFACTURING, BY TECHNOLOGICAL INTENSITY CLASSES

2008

Source: Australian manufacturing in the global economy, study for the Australian Government, Department of Industry, Innovation, Science, Research and Tertiary Education, June 2012, Figure 2.17).

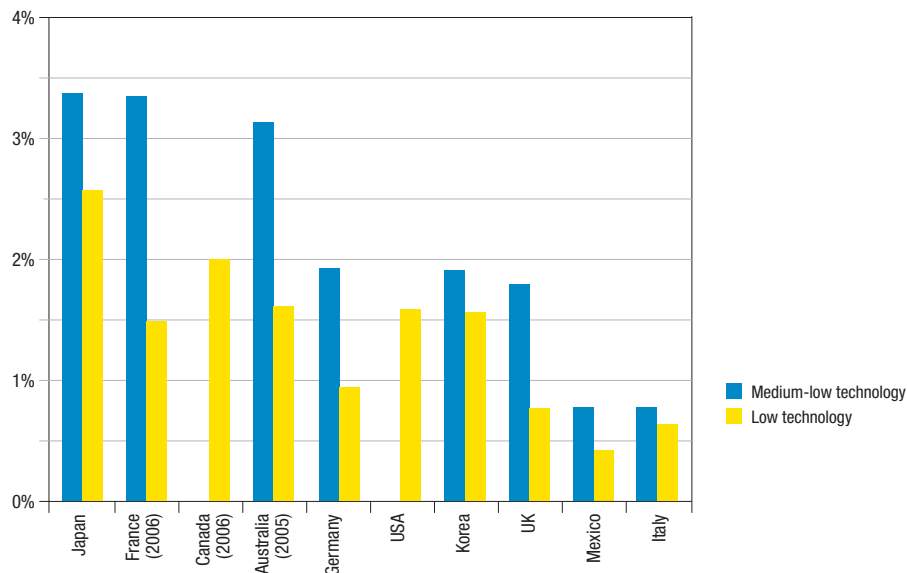


However, this technology profile is not in itself problematic. What really matters are how well Australian firms compete within these sectors and whether advantages such as proximity to natural resources outweigh costs associated with remoteness.

This indeed appears to be the case as Figure 2.18 illustrates, Australian firms are innovation-intensive within the industries it competes heavily in, particularly those relating to natural resources.

Figure 2.18
BUSINESS R&D INTENSITY,
BY TECHNOLOGICAL
INTENSITY CLASSES
2007

Source: Australian manufacturing in the global economy, study for the Australian Government, Department of Industry, Innovation, Science, Research and Tertiary Education, June 2012, Figure 2.18, from OECD Structural Analysis Data Base (STAN).



This suggests that Australia is offering high quality, differentiated products within these industries. The OECD finds that, within industries, firms in emerging economies tend to offer lower quality products than more advanced economies.

Such industries enjoy a strong and sustainable comparative advantage, and it is how we compete within industries in which we enjoy comparative advantage that matters far more for policy than whether we are home to ‘high-tech’ industries.

The OECD finds that in high-technology intensity manufacturing industries, Australian firms’ R&D intensity is lower overall than other advanced economies. This suggests that prospects here are likely to be in more specialised niches, of which there are many (eg. in medical devices, biomaterials, mining equipment and aerospace).¹⁸

A WORLD OF OPPORTUNITY

The failure to address the patchwork pressures in our economy has made it harder to convey the pride and confidence that we should all have in Australian manufacturing.

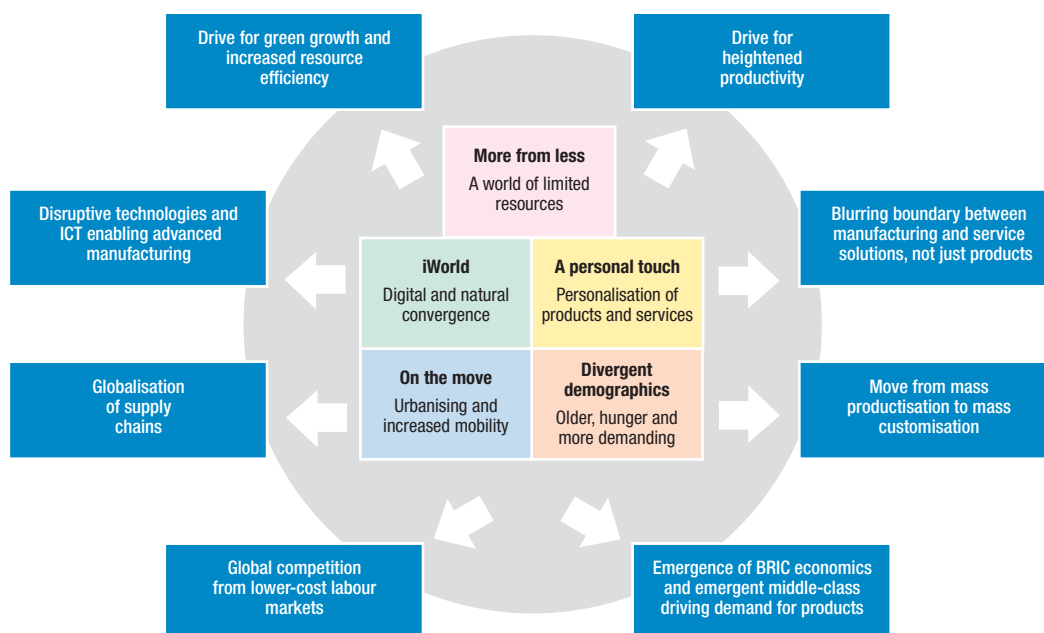
The distorted view of a sector in terminal decline is belied by the facts, but the debate itself also makes it harder for us to see the big picture, the opportunities before us.

Emerging practices

CSIRO has synthesised its work on trends to document how some of the major economic, technological and societal changes are already impacting manufacturing.

Figure 2.19
TRENDS AND THEIR IMPACTS ON MANUFACTURING

Source: CSIRO (2012), supporting paper for the Prime Minister's Manufacturing Taskforce



These developments point to how services are added to products, to rising demand for a clean economy, to the new opportunities in both integrated and unbundled supply chains, and to the transformative opportunity of digital manufacturing. The non-government members of the Taskforce believe that the story of Australian manufacturing remains one of opportunities, but we need to understand such developments to benefit from them. The focus for Australian manufacturing firms needs to be on value-adding, from wherever they are in value chains, as it will be those that leverage local industrial, scientific or consumer uniqueness that will continue to succeed.

Despite current pressures, many manufacturing firms are already making the changes needed. In addition, there are a number of good reasons to remain optimistic about the future of Australian manufacturing as outlined in Box 2.1.

Box 2.1 A BETTER MANUFACTURING FUTURE



Many arguments can be mounted to suggest a better future for Australian manufacturing.

1. Innovation-intensive manufacturing niches, such as mining equipment, medical devices and aerospace, are continuing to grow on the basis of their highly specialised skills.
2. Some past pressures may now be reversing – for example, automation and technology gains are beginning to limit the labour cost advantage in emerging economies.

3. The growing need to reflect local customer requirements encourages firms to spread their research and operations across markets, including in the Australian market itself.
4. Australia's remoteness encourages foreign companies to set up subsidiaries in Australia, rather than just exporting, adding to local competition, industry scale and knowledge spillovers.
5. Capital-intensive industries exhibit 'stickiness', with the large costs associated with change ensuring that firms carefully consider structural rather than just cyclical economic pressures.

6. Australia's geography still offers some protection in domestic markets, with proximity factors such as transport costs and familiarity with consumers deterring importers.
7. Australia's population growth and dispersed population will continue to demand housing and infrastructure needs, ensuring strong construction sector growth and manufacturing spillovers.
8. The opportunity to establish high value adding manufacturing activities in close proximity to inputs where Australia has comparative advantages eg. food, forestry and mineral resources.

The Asian Century and the ‘Power of Proximity’

In 2005, Thomas Friedman argued that the declining cost to a firm of distance, that is transport and communications costs, had made the world ‘flat’.¹⁹ What is not disputed is the emergence of a new phase of globalisation, and that this is radically changing how we connect and how we compete.

However, scale and geography still matter. Comparative advantage and more integrated global supply chains are producing a world that is not ‘flat’, but ‘spiky’. It has long been established in economics that proximity to suppliers and consumers strengthens competition and specialisation through opportunities for economies of scale and scope, and knowledge-transfer.

This is why Australia’s natural resource endowments, such as abundant land, minerals and grown resources offer a uniquely Australian platform for manufacturing growth, are built on both scale and proximity. Australia’s internal geography is also important here, given the distances between our major centres.

Battersby (2006) finds that a state’s proximity to markets, including national markets, has a significant impact on productivity levels. This geography explains almost half of Australia’s productivity gap to the USA.²⁰

These are not unrelated. The OECD suggests that for large remote countries, the agglomeration benefits of its urban concentration (in major cities) are likely to be more significant than its global geography.

As we shall argue, Australia may be able to capture the benefits of both. The geographic story is looming large for Australia as the rise of Asian economies turns Australia’s ‘tyranny of distance’ into a new ‘power of proximity’,²¹ and as the power of high speed broadband makes it easier to connect with others.

The scale of the Asian ascent can barely be overstated: it is the largest structural shift that the world economy has ever seen. For the first time in two centuries, emerging market economies led by China and India are contributing more to global growth than advanced economies.

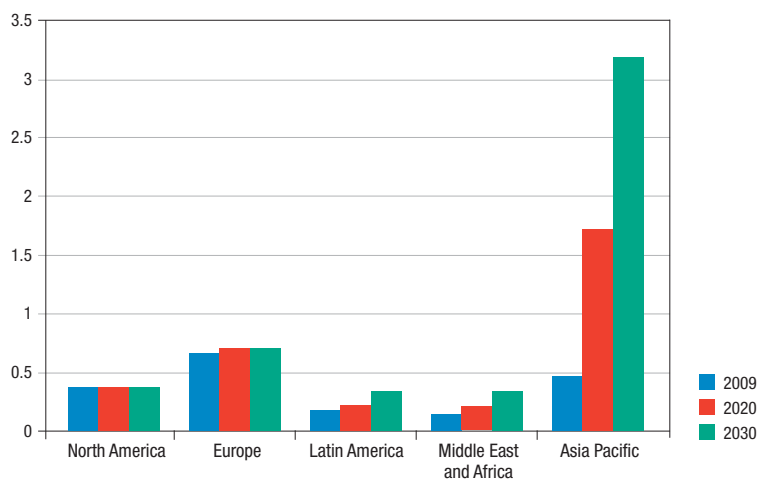
By 2015, it is estimated that the new global middle class will contain 15 per cent of the world’s population, with the vast bulk of this in Australia’s region.

Figure 2.20

THE RISE OF THE ASIAN MIDDLE CLASS

Middle class consumers (billions)

Source: Kharag, H. and Gertz, G. (2010), “The New Global Middle Class: A Cross-Over From West to East” in C. Li (ed), *China’s Emerging Middle Class: Beyond Economic Transformation*, Washington DC, Brookings.



The early years of the Asian Century have shifted global value chains in resources, manufacturing and services. Further industrialisation and urbanisation, and the new emerging and middle classes emerging with it, will have a larger impact still.

Equally, changes of this magnitude bring with them heightened volatility and uncertainty for which Australia must also be prepared as it considers the portfolio of capabilities and industries that will be needed to prosper in this new environment.

Australia has a unique opportunity to be a bridge between advanced economy capabilities and emerging economy needs. Success will depend on relationships that involve flows of capital, knowledge and people, as well as products and services.

Austrade has identified for the Taskforce a number of areas that have potentially broad reach across Asian markets:

- automotive components;
- clean energy and environment;
- food and beverages;
- health and medical;
- infrastructure and building materials.

This should only be seen as a very high-level guide, given the diversity and granularity of Australia's manufacturing opportunities. For example, opportunities are evident in a range of niche products that use creative design and marketing to establish unique brands and reach new markets, ranging from mining equipment to games development, cosmetics and high-value fashion.

SECTION 2 MANUFACTURING: POSITION, PRESSURES AND PROSPECTS – FOOTNOTES

7. Total Industry GVA is equal to GDP minus Taxes less subsidies on products, ownership of dwellings and Statistical discrepancy.

8. OECD 2006, *The changing nature of manufacturing in OECD economies*, OECD Directorate for Science, Technology and Industry working paper.

9. Capacity and expertise to support industry is held in several Industry Skills Councils.

10. Manufacturing Skills Australia – 2012 Environmental Scan page 17.

11. Roos, G. (2012), SA report, pp.45-46. See also Charles Roxburgh, C., Manyika, J., Dobbs, R. and Mischke, J., 2012, *Trading myths: Addressing misconceptions about trade, jobs, and competitiveness*, McKinsey Global Institute pp.22-23.

12. Boulhel et al, (2008), *The contribution of economic geography to GDP per capita*, p.25.

13. Ibid.

14. Martin Parkinson (2011), *Opportunities, Challenges and Implications for Policy*, speech to Australian Business Economists, 17 May 2011.

15. OECD Economic Outlook 91 database: Competitiveness-weighted relative consumer prices in dollar terms. Competitiveness weights take into account the structure of competition in both export and import markets of the manufacturing sector of 49 countries. An increase in the index indicates a real effective appreciation and a corresponding deterioration of the competitive position.

16. 'BLS compensation data permit more meaningful comparisons of employer labour costs than data based solely on average earnings. Definitions of average earnings differ considerably by country and do not include many items of labour cost that frequently make up a large portion of total cost. BLS compensation data include nearly all labour costs incurred by employers, but some costs included in the International Labour Office (ILO) definition of total labour costs – such as recruitment, vocational training, and maintenance of company-provided facilities – are not included in the BLS data. The excluded costs amount to no more than 2 per cent of total costs.'

Source: <http://www.bls.gov/fls/ichcctn.pdf>.

17. The annual reports of the US Trade Representatives Office summarise the non-tariff trade barriers and IP/copyright infringements being pursued in over 60 countries, many with whom Australia trades and competes.

18. A similar conclusion is reached in Professor Göran Roos' 2011 report on *'Manufacturing into the future'* for the South Australian Thinkers-in-Residence program.

19. Friedman, T. (2005), *The World is Flat: A Brief History of the 21st Century*, Farrar, Straus and Giroux.

20. Battersby, B. (2006), *Does Distance Matter: The Effect of Geographic Isolation on Productivity Levels*, OECD, Paris.

21. OECD (2008), *Going for Growth*, Press Briefing, p.15; Harcourt, T. (2011), *The rush that never ended ... exports, exchange rates and the Gregory effect*, presentation to The Resources Boom: Understanding National and Regional Implications Conference, Victoria University, 23 February 2011.

AUSTRALIA'S ECONOMY: POSITION, PRESSURES AND PROSPECTS

SECTION SUMMARY

This section explores the position, pressures and prospects of the Australian economy, providing the context in which manufacturing prospers or falters.

As a whole, the stories we hear of Australian prosperity and wellbeing speak of success: strong growth, low unemployment, a great quality of life. The non-government members of the Taskforce note that Australia's glass is 'more than half full'.

However, such stories can seem a long way from the experiences of many people and businesses in manufacturing, particularly in a patchwork economy that remains too narrowly based on a few industries in a few regions.

The problem is that our prosperity is *narrowly based*.

The strategy proposed in this report is premised on a simple proposition: that Australia's future will be brighter with a broad-based national economy, built on more than a few industries in more than a few regions.

A portfolio of industry strengths and capabilities is vital for the long-term health of the economy and the nation. Portfolio theory tells us that a broad-based national economy is one that is stronger, more resilient and more innovative.

Large nations develop broad-based economies by understanding the industry and region specific dimensions of their traded industries.

The resources boom has masked the fact that Australia is living off the economic challenge of an era in which efficiency and competition were the only priorities of the day. But that day has long since past, and with its passing we have seen our productivity growth decline and our competitiveness erode.

As Treasury Secretary Martin Parkinson has argued:

"We do ourselves, and the nation, a disservice if we target reform efforts only on the same areas as we have in the past. It is in the areas we have not yet focused on that the largest gains are most likely."

We need a new approach, one that recognises the productivity and competitiveness challenge for what it is – one increasingly based on innovation for global markets, one that leverages Australia's broad portfolio of comparative advantages, and one that leverages a distinctly Australian knack for practical problem solving.

While such a practical focus may sound unexciting, Australia finds itself with a set of economic opportunities that no other nation on earth can match.

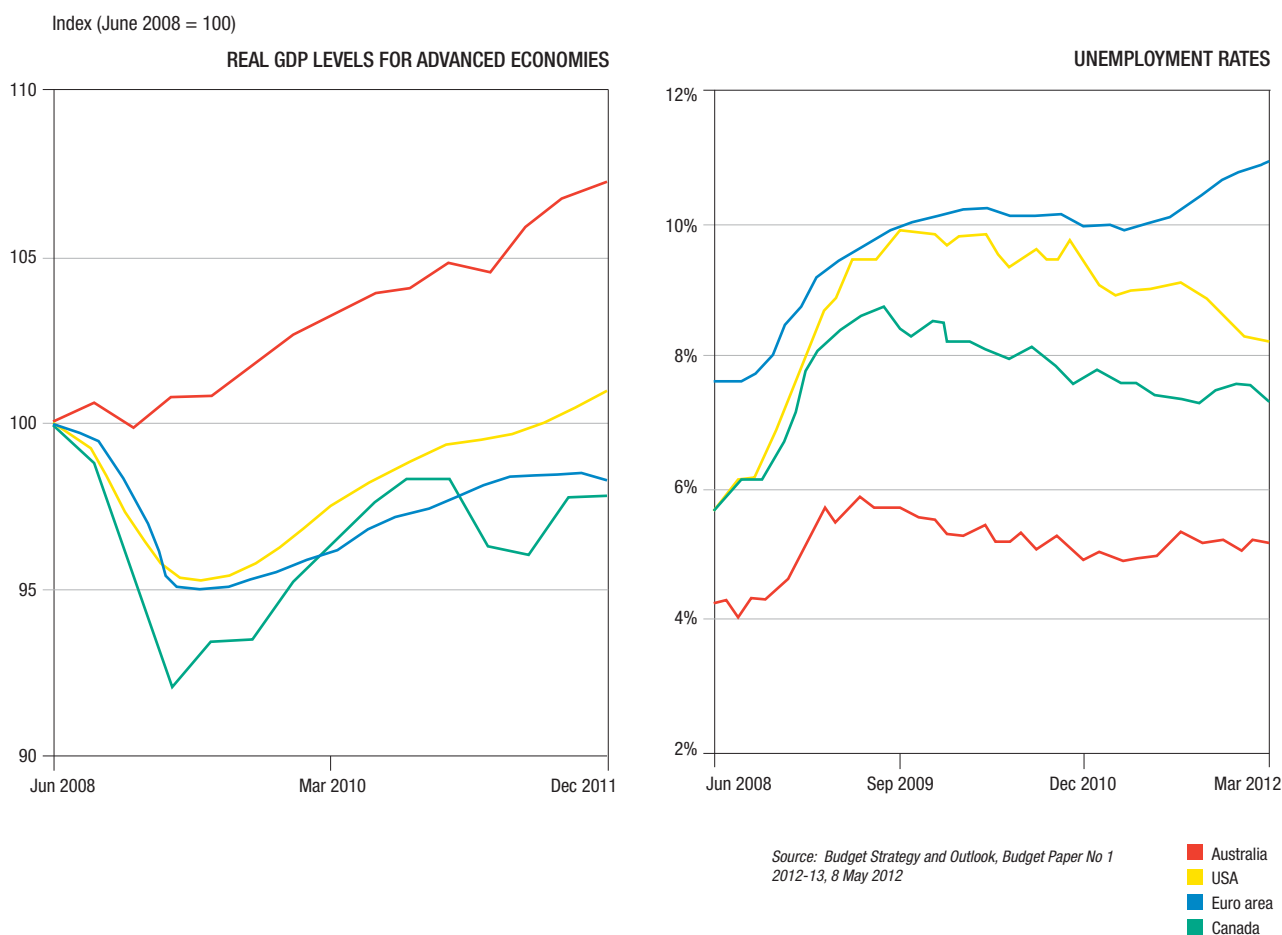
This section examines Australia's economic position and prospects, and the nature of the substantial economic transition underway. The analysis reveals that many of the pressures facing Australian manufacturing reflect challenges in the wider economy.

Australia's economic position

PRODUCTIVITY AND PROSPERITY

Since the global financial crisis, Australia has enjoyed a faster rate of economic growth than many other advanced economies, and Australians enjoy the benefit of an unemployment rate that others rightly envy as shown in Figure 3.1.

Figure 3.1
GDP LEVELS AND UNEMPLOYMENT RATES FOR ADVANCED ECONOMIES



While Australia's levels of GDP per capita and productivity do not match those of other advanced economies such as the USA, factors such as scale and geography mean that these are not reasonable measures of policy effectiveness. A focus on productivity growth is more relevant because it relates to changes in economic prosperity and all the opportunities that follow – better and more rewarding jobs and careers, access to a wider range of high quality products and services, and the capacity to make more choices as individuals and as a society.

Measures of wellbeing that look beyond the economy make Australia's performance look even more impressive.

Australia ranks highly on the OECD's Better Life indicators and second to Norway on the United Nations Human Development Index. Our major cities still regularly rate as among the world's best places to live.²² On these measures, it seems that Australia's glass is indeed 'more than half full'.

Australia's economic pressures

THE PATCHWORK ECONOMY

However, stories of Australian prosperity can seem a long way from the experiences of many people and businesses in manufacturing, particularly in a patchwork economy that remains too narrowly based on a few industries in a few regions. The patchwork economy – the different patterns of economic development across industries and regions – has always been with us to some degree. At different times in the past, drought or low resource commodity prices have left regions that are currently thriving in deep recession.

As discussed, these impacts reflect a combination of cyclical and structural factors.

Australia's strengths – resources, skilled people and location – are now working to our advantage, as the weight of global demand shifts to the inputs needed for Asia's industrialisation, and to the demands of its new middle classes.

High terms of trade may represent a level shift, even a windfall gain, in *aggregate*.²³ A higher Australian dollar certainly gives Australians more purchasing power.

However, it does not automatically follow that this will either last forever or result in an economy that is stronger in an underlying sense. Further, the pressures on some industries are threatening capabilities that, if lost, will be difficult if not impossible to revive.

The policy response to a patchwork economy must start with a key proposition: that Australia will be better prepared for the future with a diverse national economy, built on a range of successful industries and regions.

This is portfolio theory at work – diversification across multiple sources of growth can improve overall performance and reduce underlying risk.

This is not to argue that all industries and regions should expect to thrive in their current form – structural change will continue – but that Australia's economy would benefit from having multiple strong industries and strong regions.

In the non-government members of the Taskforce's view, a broad-based national economy offers multiple benefits:

- It is more resilient in a world of heightened volatility and unexpected shocks, as it has multiple capabilities and strengths powering the economic engine.
- It is more productive, as traded industries can grow at a faster rate than those dependent solely on local demand.
- It has greater innovative capacity, as it has a breadth of capabilities that can exploit new opportunities at the edges of disciplines, sectors and geographies.

If Australia wants a diverse national economy, then we need to understand that achieving it requires success in multiple traded industries, even against the backdrop of a persistently high dollar, and that this in turn requires specialisation.

This is an important conclusion: in large countries, one of the key ways to build diversity at the level of the national economy is to enhance specialisation at the level of regional economies.²⁴

This is because world-class industries are often best able to develop when groups of firms develop together (eg, wine in South Australia, automotive in Melbourne, financial services in Sydney), combining shared knowledge with multiple applications.

An industry-level approach

A number of commentators have described Australia as a 'three speed' economy, characterised by:

- Rapid growth in the resources sector, reflecting high commodity prices and exports.
- Weak growth in the non-resources traded industries, as a higher exchange rate undermines industry competitiveness.
- An intermediate level of growth in the non-traded industries, mostly services.

While this description may be broadly accurate, the reality is more complex. In practice, Australia's economy is, as it has always been a multi-speed economy. At different times in our history, different sectors have taken the lead. The outstanding characteristic of recent change is the extraordinary growth of the leading sector, resources.

McKinsey Global Institute (MGI) has developed a useful framework with which to consider this, based on its extensive industry-level analysis across advanced economies. MGI characterises industry performance on the basis of two key drivers:

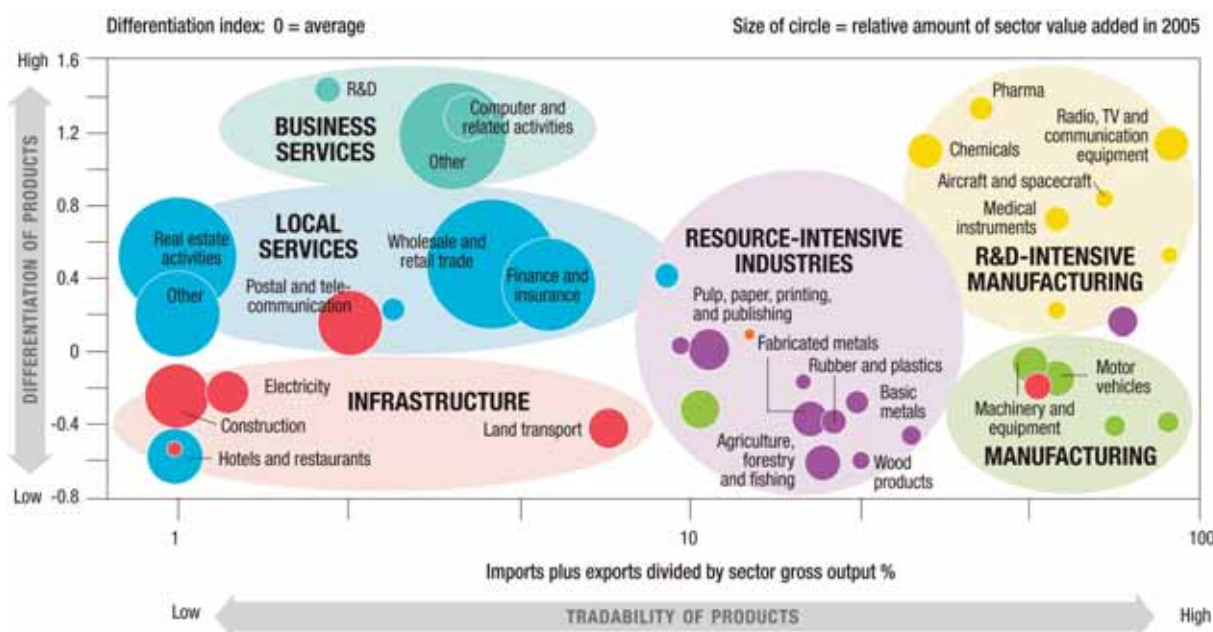
- **Differentiation:** *Is value in the industry driven by value adding with unique products, services and features, as opposed to commodities?*
- **Tradability:** *Are the sector's products tradable and hence subject to external competitive pressures?*

The empirical relationships between these forces, observed for different sectors and industries, are shown in Figure 3.2.

Figure 3.2

McKINSEY GLOBAL INSTITUTE SECTORAL AND INDUSTRY ANALYSIS

Sectors are in six groups according to degrees of differentiation and tradability



Source: McKinsey Global Institute (2010), *How to compete and grow: A sector guide to policy*, March 2010.

While the MGI portrayal may seem complex, and reflects trends across advanced economies broadly rather than Australia specifically, its insights are significant.

It confirms that, more so than other sectors, manufacturing is dependent on its ability to succeed in traded industries. Traded industries (both those exporting and those subject to import competition) will increasingly be required to compete on the basis of differentiation that leverages unique inputs, capabilities or consumer relationships.

Further, MGI find that *within-industry* developments have greater overall economic impacts than changes in the industry mix. While consistent with wider evidence, this challenges conventional policy wisdom.

To put this idea in its simplest form, Michael Porter points out that:

“How a nation or region competes in its industries matters more than the industries it competes in.”

This point cannot be overstated: with domestic industry growth cycles and global value chains evolving in an industry-specific manner, policy needs to be informed by detailed *industry-specific* – not merely economy-wide – analysis and understanding. ²⁵

A regional approach

The Prime Minister's Terms of Reference ask the Taskforce to examine the regional dimension to Australia's policy settings. The non-government members of the Taskforce believe this is significant, as traded industries typically cluster regionally.²⁶

Regional in this report refers to all geographic areas, not merely those in non-metropolitan Australia.

The regional perspective requires us to consider the role of trade within the national economy. Success in trade industries requires a focus on specialisations of regional economies, not just the nation as a whole.

As Michael Porter notes with reference to the USA:²⁷

“There is no national economy ... but a series of regional economies that trade with each other and the rest of the world.”

This observation is critical for all geographically large countries, where devolved approaches to policy are needed to support regional specialisation and local stakeholder commitment.²⁸ This is reinforced by evidence suggesting that trade remains stronger within nations and within industries than between them.²⁹

This is why the OECD emphasises the need to set economic priorities at a regional as well as national level, and to build long-term investments and strategies around unique regional advantages. Policies such as New Regional Policy in Switzerland and Regional Innovation Clusters in the USA are doing just that.

While regional advantages are constantly being reshaped, they can take years to establish but, once established, prove remarkably persistent. Within Australia, this regional perspective highlights the importance of interstate as well as international trade. Averaged across Australia, interstate trade is roughly of the same magnitude as international trade, around 20 per cent of state output.

A PORTFOLIO APPROACH TO TRADED INDUSTRIES

For the Australian economy to succeed, it must continue to expand opportunities in traded industries. Such industries have elsewhere been called the 'pillars of wealth'.³⁰

Firms that compete in traded industries matter, grow productivity more rapidly, enable their wider economies to grow faster as they penetrate new and faster-growing markets, and create larger multipliers due to an influx of income. They are often also the key conduits for technology and skills transfer, and for the broader integration of Australian firms and capabilities into global value chains.

A portfolio-based approach to traded industries is proposed. As in financial theory, this is how we lift long-term growth without exposing ourselves to greater risk. Such an approach would recognise our economy's patchwork pressures, but also step above the divisions created when change is framed as a 'zero sum game' that sees it as sector versus sector, or state versus state. Australia can do better than that.

This is how we leverage Australia's comparative advantages to provide long-term resilience, productivity and innovation.

The non-government members of the Taskforce propose that the Commonwealth develop a comprehensive and coherent approach to Australia's traded industries, possibly as part of a wider agenda with the states that mirrors the approach of National Competition Policy in the 1990s. This needs to be built from the ground up, based on regional comparative advantage, building business capability and accessing new global value chains, all in support of the goal of a broad-based national economy.

A more coherent approach to traded industries can help meet new demands at home and abroad – not only for resources, but for better food and health, for smarter and cleaner growth, and for highly valued products, services and solutions.

Through smart specialisation, stronger national networks and global engagement, we can rebuild manufacturing into a vibrant and exciting sector, and in the process build the new advantages that can underpin a broad-based national economy.

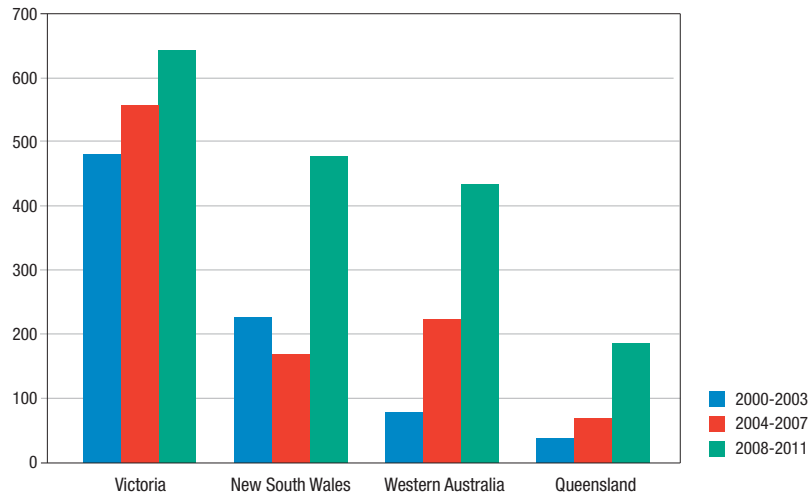
Such an approach would recognise the complementarities between manufacturing, services and resources. An example of this is in engineering and design. Figure 3.3 shows how these are emerging as new globally competitive Australian capabilities.

Figure 3.3

ENGINEERING AND DESIGN SERVICES EXPORTS

– by State (\$m pa)

Source: ABS Cat. 5368.0.55.003 – International Trade in Services by Country, by State and by Detailed Services Category, Financial Year, 2010-11, 11 November 2011. Data shows architectural, engineering, scientific and other technical services.



This growth reflects the fact that our engineering capabilities are deployed not just in manufacturing, but also in construction and resources-based activity. And they are underpinning opportunities right across the nation. As global demands change, engineering itself is becoming more design-oriented as it seeks to offer differentiated, value-adding solutions, as seen in Box 3.1.

Box 3.1 NEW ENGINEERING ‘SOLUTIONS’: A CASE STUDY

THE COMPANY

Established in 1982, Western Australian company Binder Group has become one of the world’s leading designers, manufacturers and suppliers of pipe support and pipe suspension systems for the global oil and gas, petrochemical, power and heavy industrial markets. Binder’s pipe support systems are used in heavy engineering applications to secure and keep pipes in place.

The company uses the latest technology in accordance with international design codes and makes a full range of pipe supports and associated equipment including spring hangers, snubbers and cryogenic supports, focusing on niche ‘specialist engineered products’.

THE CHALLENGE AND THE OPPORTUNITY

To be a long term sustainable manufacturer, Binder understood that it needed to expand internationally, offer a cost competitive product and be the supplier of choice to multinational construction companies and end users.

During the 1990s and early 2000s, Binder worked to develop export markets by researching international market conditions, and developing relationships with multinational customers. Binder accessed the global supply chains by continually ‘knocking on the doors’ of major engineering procurement and construction companies around the world, getting added to the approved vendor lists and developing a strong network of agents in target markets. Binder also used Export Market Development Grants and Austrade’s international network.

Utilising the latest design software, Binder can integrate with many of their customers design packages to provide a seamless service that adds value and removes the time consuming task of support design. The company uses the Perth factory for short lead time, high flexibility products, and as part of their growth strategy set up manufacturing facilities in Indonesia allowing Binder to compete in markets where price is a major factor.

LESSONS LEARNT AND LOOKING FORWARD

Doing their homework and building up an international presence has paid dividends. Binder has multiple manufacturing plants, plus a good spread of sales offices and agents covering key markets.

With a turnover of AUD \$33 million, Binder now supplies to the top 30 engineering companies in the world and has a global project track record across a number of sectors with firms such as Kellogg Brown & Root, Bechtel, Saipem, and Toyo.

The company has completed projects in the Middle East, across South East Asia, Japan and Korea and is now looking to develop China as an export market with the assistance of both Austrade and the Export Finance and Insurance Corporation.

Binder’s competitive advantage is that it is an experienced, long term, global player offering bespoke solutions with a track record of projects, a strong international reputation and network of agents, offering a competitively priced world class product.

Australia's economic prospects

While Australia rates very well on measures of current prosperity and wellbeing, it is worth asking how well we are prepared and positioned for the future.³¹ On a variety of measures – productivity growth, competitiveness and innovation – a story emerges of the 2000s as a lost decade for large-scale reform.

PRODUCTIVITY GROWTH

The most relevant measure in this respect is productivity growth. Australia has slipped back from being a leader in the 1990s to a laggard from the early 2000s. While the underlying reasons behind this remain disputed, there is a broad consensus that there has been a loss of reform momentum.³²

Figure 3.4

LABOUR PRODUCTIVITY GROWTH

Australia v OECD average

Source: Quoted In Professor Green and Roos power point presentation to the March Taskforce meeting with data sourced from Treasury and the US Conference Board.

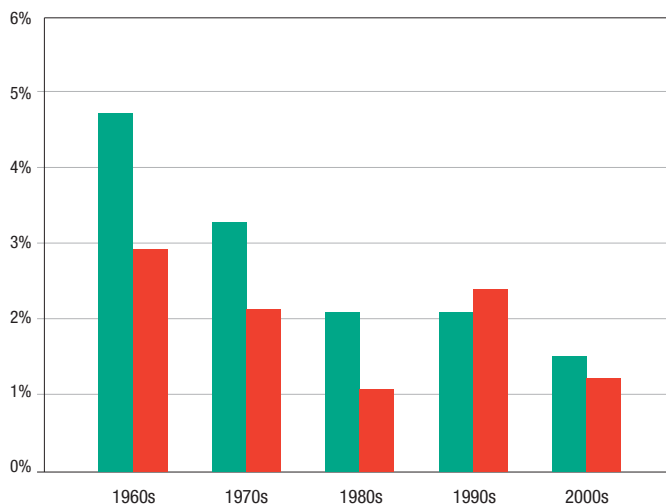


Figure 3.4 confirms Australia's labour productivity growth drop-off over the past decade.³³ In terms of multi-factor productivity, manufacturing is estimated to have contributed proportionately more to this slump than other market sectors.³⁴

COMPETITIVENESS

An alternative lens to productivity growth is provided by the Global Competitiveness Index (GCI), which seeks to measure 'sustainable competitiveness'. Figure 3.5 shows Australia's competitiveness gap against 12 pillars under the categories of basic requirements, efficiency enablers and innovation enablers. The longer bars indicate a greater gap to world's best practice.

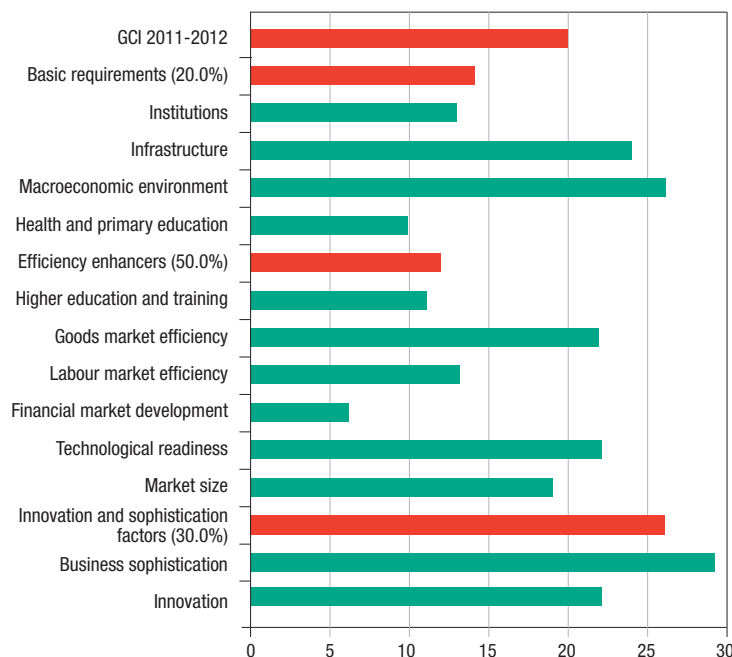
Figure 3.5

AUSTRALIA'S COMPETITIVENESS GAP

GCI 2001-2012 Australia's ranking

Ranked out of 142 countries, lower ranks are scored as more competitive.

Source: Global Competitiveness Report: 2011-12, World Economic Forum



Australia's performance on the GCI reflects the strength of its macroeconomic policy and financial markets, and a tradition of strong public and private institutions.³⁵ Australia rates generally well on basic requirements and efficiency enablers, with the exception of goods market competition and infrastructure, both of which are affected by Australia's small market, distance from global markets and dispersed population.

The outstanding concern is Australia's rating on innovation enablers, as these become more important as economies grow wealthier and can no longer compete on the basis of costs alone.

Specific Australian weaknesses are identified in innovation, technological readiness and management capabilities (shown in the above as business sophistication). More detailed analysis reveals limitations in cluster development, value chain breadth, creative output, and the availability of advanced science and engineering skills.³⁶

Failure to address these new challenges has seen our global competitiveness rank tumble from 5th just a decade ago to 20th today.

Australia's efficiency-oriented reform tradition has produced great benefits. However, we need to ensure that it does not now work to the detriment of the areas that need to be the focus of policy renewal. As Treasury Secretary Martin Parkinson puts it:

“We do ourselves, and the nation, a disservice if we target reform efforts only on the same areas as we have in the past. It is in the areas we have not yet focused on that the largest gains are most likely.”

Australian economic policy – for all of its achievements – once again needs to step back to see the bigger picture of our competitiveness.

INNOVATION THE AUSTRALIAN WAY

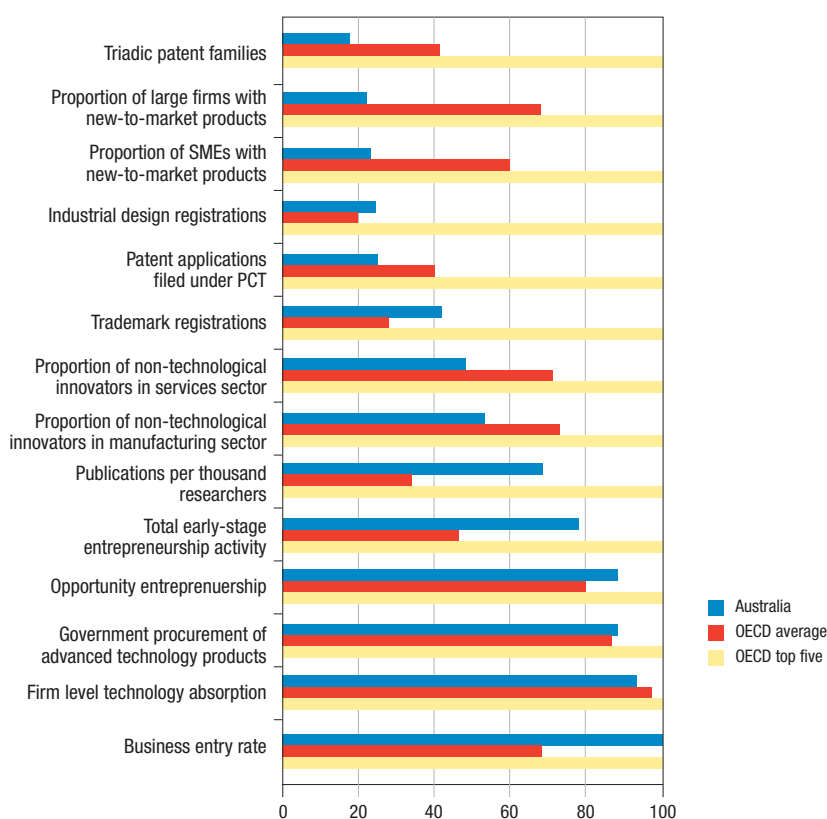
Further insight into Australia's innovation performance is provided through the 2011 Innovation System Report, published by the Commonwealth. Building on the evidence discussed above, this reveals distinctive features of Australian innovation.

We're 'adopters and adapters'

Figure 3.6 summarises output indicators, relative to OECD nations. For each indicator it compares Australia with the top five OECD countries and with the OECD average.

Figure 3.6
OUTPUT INDICATORS FOR NATIONAL INNOVATION SYSTEM

Source: National innovation system output indicators (innovation creation and diffusion, i.e. the health of the system).



The output indicators in Figure 3.6 provide a useful focal point, as they sit between institutional and policy settings, and productivity and innovation outcomes.

This reveals Australia’s strengths in entrepreneurial activities, such as business start-ups and ideas generation (eg. early-stage entrepreneurial activity and scientific publications), as well as firm-level technology absorption. However, it also suggests large gaps from global best practice in non-technological innovation, in the intensity of its creative activities, and in new-to-market product innovation.

This suggests a model of innovation that is primarily about adopting and adapting ideas developed elsewhere, rather than inventing new-to-the-world products and processes. As a small, geographically isolated nation, Australia will likely remain on the periphery of new-to-the-world scientific breakthroughs.³⁷

This relates to a key recommendation of this report: that policy setting – especially those addressing how research and government can be more effective partners in business innovation – needs to focus more on applied knowledge.

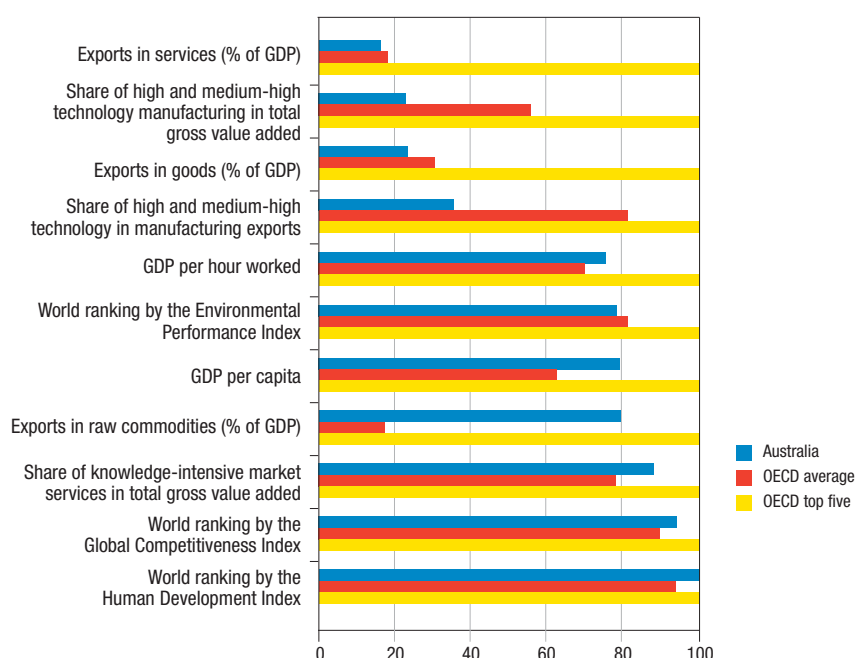
Australia’s edge is in low-medium technology manufacturing, based on our natural resources

Figure 3.7 summarises outcome indicators relative to OECD nations. For each indicator it compares Australia with the top five OECD countries and with the OECD average.

Figure 3.7

OUTPUT INDICATORS FOR NATIONAL INNOVATION SYSTEM

Source: National innovation system outcome indicators (identification of opportunities, innovation creation and diffusion).



The outcomes described in Figure 3.7 reflect the basis of Australia’s advanced services economy, but also the challenges inherent in its economic structure.

Australia is broadly competitive, and ranks very highly in the export of raw materials (3rd), and in its use of knowledge-intensive business services (5th) within the economy.

Its low ranking in advanced manufacturing (30th) reflects not simply policy, but also its advantages in low and medium-technology areas and the difficulties for our manufacturers to compete other than in niche areas in high-technology markets.

Perceptions of Australia: efficient, but not innovative

Figure 3.8 outlines how Australia is seen by our major trading partners. It shows how other countries perceive Australia (global rankings) for a number of reputation drivers. Shading indicates relative strengths in green and relative weaknesses in red.

These perceptions matter because they suggest the predispositions of others in engagements with Australia. They tell a familiar story. While well regarded for our stability and efficiency, we are not so regarded for our skills and innovation.

These perceptions are strongest with respect to the very countries we're trying to sell increasingly differentiated and value-added solutions to in the Asian Century.

Figure 3.8
PERCEPTIONS OF AUSTRALIA
IN KEY MARKETS

Global rankings

Source: Austrade analysis of the 2011 Anholt GfK Roper Nation Brands Index and the 2011 CountryRep Study by the Reputation Institute.

Reputation drivers	Categories	USA	UK	China	India
Innovation	Creative place with cutting edge ideas and new ways of thinking	6	9	12	12
	Is among the first to create new technologies	9	5	22	15
	Contributes to science and technology	11	11	12	9
Brands and Products	High quality products and services	5	5	16	17
	Feel good about buying products from Australia	3	8	12	10
	Country of origin for leading companies	9	5	20	18
Business Environment	Operates efficiently – doesn't impose unnecessary taxes or waste resources	2	2	13	14
	Well-developed structure of political and legal institutions	1	2	12	16
	Stable and low risk economy and well-developed infrastructure	1	1	13	21
	Has businesses I'd like to invest in	6	5	1	10
	Has a well-educated and reliable workforce	6	3	16	19

■ Relatively strong
■ Relatively weak

SECTION 3 AUSTRALIA'S ECONOMY: POSITION, PRESSURES AND PROSPECTS – FOOTNOTES

22. See United Nations Human Development Index; Anholt-GfK Roper City Brands Index July 2011; Economist Intelligence Unit Liveability Index August 2011.

23. See Gruen, D. (2011), *The Resources Boom and Structural Change in the Australian Economy*, speech to CEDA, 24 February 2011; Gregory, B. (2011), Observations on the Export Boom, presentation to 'The Resources Boom: Understanding National and Regional Implications' Conference, Victoria University, 23 February 2011.

24. In this context, 'regional' is intended as 'local' rather than non-metropolitan (the latter being a distinctly Australian approach).

25. Barnes, P. (2011), *Multifactor Productivity Growth Cycles at the Industry Level*, staff working paper, July 2011; OECD (2012), *Australian Manufacturing in the Global Economy*, Study for the Department of Industry, Innovation, Science, Research and Tertiary Education, Interim Report.

26. West, J. (2007), *A Strategy to Accelerate Innovation in NSW*, AIRC, p.9.

27. Porter, M. (2007), *Clusters and Economic Policy: Aligning Public Policy with the New Economics of Competition*, ISC White Paper, Harvard Business School, November.

28. Porter, M. (2010), *Competitiveness in the Post Crisis Era: The Strategic Agenda for the UK*, Global Investment Conference 2010, p.20; see also OECD (2011), *Territorial Review of Switzerland*.

29. Mayer, T. and Zignago, S. (2005), *Market access in global and regional trade*, CEPII Working Paper N° 2005-02, Paris: CEPII Research Center; OECD (2012), *Australian Manufacturing in the Global Economy*, Study for the Department of Industry, Innovation, Science, Research and Tertiary Education, Interim Report.

30. BCG (2008), *Creative Switzerland? Creating an Innovation Powerhouse*, Joint study of the Swiss-American Chamber of Commerce and the Boston Consulting Group, December 2008.

31. While Australia's current prosperity appears remarkable, the recent and rapid nature of this rise means Australia still ranks below all of the peer nations in terms of household financial wealth.

32. Garnaut, R. (2005), *Breaking the Great Australian Complacency in the Early Twenty First Century*, paper to 2005 Economic and Social Outlook Conference, Melbourne, 31 March.

33. Australia's inferior productivity performance is not as self-evident as it seems. Australia is likely to be significantly constrained by its geography (internal and external) and by the high proportion of small firms within its economy. See Dolman, B., Parham, D. and S. Zheng (2007), *Can Australia Match US Productivity Performance*, Staff Working Paper, Productivity Commission, March 2007.

34. OECD (2012), *Australian Manufacturing in the Global Economy*, Study for the Department of Industry, Innovation, Science, Research and Tertiary Education, Interim Report.

35. Note that the 'macro environment' indicator has improved significantly in recent years.

36. Similar conclusions flow from the INSEAD Global Innovation Index and the World Knowledge Competitiveness Index.

37. M. Dodgson, A. Hughes, J. Foster, and J.S.Metcalf (2011) *Systems thinking, market failure and the development of innovation policy: The case of Australia*, Centre for Business Research, University of Cambridge, Working Paper No. 397, December 2009.

THE POLICY FRAMEWORK

SECTION SUMMARY

This section outlines the policy framework that underpins this report, informed by key challenges and involving a strategy to build the broad-based national economy that is in the long-term interests of the economy and the nation.

The non-government members of the Taskforce propose that the policy strategy needed for Australian manufacturing and Australia must be underpinned by a clear objective, a clear articulation of the challenges and a committed set of policy directions.

The non-government members of the Taskforce have examined the underlying challenges facing Australian manufacturing and the Australian economy. This has enabled us to identify three key challenges that an Australian manufacturing policy must meet.

First, there is a strong case for focusing on applied knowledge. More than ever in today's high-cost environment, manufacturers need to be able to value add. This requires policies that support innovation, not invention.

Second, there is a need to recognise that it is business, based on market needs, that drives most innovation. This is despite the fact that our innovation policies are geared to an out dated supply-side way of thinking.

Third, there is a need for new capabilities and cultures to drive change. This will require new skill sets to absorb knowledge, but also a mindset that aims to build constructive relationships between managers and workers, rather than relying on rules and regulations to resolve tensions.

The vision of the non-government members of the Taskforce is more grounded than grand. Australians are a practical people, have practical models of innovation and will embrace practical problem solutions to challenges large and small.

The non-government members of the Taskforce have also considered leading practices from other nations. Their strategies, particularly those of the Nordic region and of small open economies, have informed, refined and mostly reinforced our direction.

The strategy proposed reflects the specific needs of Australian manufacturing and the Australian economy. Its core theme, ***Smarter Manufacturing for a Smarter Australia***, is a call for both action and aspiration. It recognises that:

- A dynamic and thriving Australian manufacturing sector is critical to the long-term health of the economy and the nation.
- Australia's practical problem solving can be a great asset that can help to apply knowledge that adds value in a high cost environment.
- Australia needs to prepare and position for a new Asia, one that is generating both new knowledge and new demands at a rapid pace.
- All stakeholders need to lift their sights, expectations and aspirations, both for how the world sees Australia and for how we see ourselves.

This strategy is premised on the argument that a broad-based national economy can support our resilience, productivity and innovation. The non-government members of the Taskforce propose this goal as a reference point against which we determine and shape policy.

The non-government members of the Taskforce recognise that the new environment for manufacturing described is not a revelation. It acknowledges that governments are already trying to respond to it, and manufacturing firms confront it every day. However, what is missing from the current debate is a coherent statement of purpose, strategic intent and policy direction:

- ***What role do we see manufacturing play in Australia's economic future?***
- ***What are the outstanding policy challenges that must be met?***
- ***What is the strategic direction needed to prepare and position manufacturing to meet these challenges?***
- ***What are the specific policies that we need to modify or create today?***

It is to these questions that the non-government members of the Taskforce have focused their efforts.

The non-government members of the Taskforce have outlined a grounded rather than a grand vision. Australians are a practical people and have a practical model of innovation. Looking forward, efforts should be directed at building the broad-based national economy necessary for resilience, productivity and innovation.

This will require cooperation among all stakeholders, including within the federation. The election of a number of new State Governments present an opportunity to reconsider the role of Commonwealth-State relations in economic policy.

Key policy challenges

The non-government members of the Taskforce stress the profound challenges facing the sector right now in the face of a unique accumulation of structural and cyclical pressures.

The current pressures on manufacturing and the imperative of preparing for, and ideally preventing, the loss of both jobs and capabilities, must be priorities. Australia's 'high cost environment' should be seen not as a *fait accompli*, but as a signal to reinvigorate microeconomic reforms, both those that create downward pressure on input costs, taxes and charges (particularly in key infrastructure sectors) and those that reduce the unnecessary burdens of regulation.

The non-government members of the Taskforce have also examined the underlying challenges facing Australian manufacturing and the Australian economy. This has also enabled us to identify three longer-term challenges that an Australian manufacturing policy must meet to shape the future of Australian manufacturing:

- 1. Applying knowledge: by value adding through innovation.***
- 2. Building businesses: by unleashing the demand side.***
- 3. Driving collaboration: to develop new capabilities, new cultures and competitiveness.***

These challenges are not part of the mainstream economic debate and are, therefore, explained in some detail below.

APPLYING KNOWLEDGE: BY VALUE ADDING THROUGH INNOVATION

In distinguishing between creating and applying knowledge, or between invention and innovation, a critical difference is the notion of value adding, as determined by the customer.

A focus on value adding across the overall economy requires us to ask how we can maximise our long-term returns for a given level of risk. As discussed, the answer to this lies in a portfolio approach that involves building multiple strengths based on regional comparative advantages and competitive strengths.

These comparative advantages can only be sustained, particularly in Australia's high cost environment, by seeing value adding as an ongoing imperative.

The ability to collaborate with others, and absorb the knowledge of others, demands different skills to those used to create knowledge. For businesses, only competing in undifferentiated product markets from a high-cost base is unsustainable.

Systemic gaps in collaboration and weak knowledge networks

Perhaps the most significant systemic gap within Australian industry, partly reflecting the constraints of scale and geography, is a lack of collaboration. Collaboration is a skill to be practiced. It requires trusted relationships – often personal – and doesn't easily move beyond existing networks and markets. There are few tools in the current kits of governments or businesses to make this easier.

In Australia, collaboration is serendipitous rather than systemic – at the very time that personal relationships and social norms of collaboration are becoming key ingredients for successful innovation industries and regions.³⁸

The expansion of high-speed broadband in Australia presents an opportunity to consider how new (online) knowledge networks may be able to counteract some of Australia’s long-standing constraints and play a role in overcoming other barriers to collaboration.

New knowledge networks are creating unprecedented opportunities for ‘virtual scale’. This is seen in connections within firms, between firms and within supply chains. A number of nations already connect their various clusters through such networks, expanding the scope for collaboration both within and across industries and regions (and even internationally). For example, Germany’s Fraunhofer Institute supports 18 regional innovation clusters, networked within and between industries.³⁹

The most relevant approach comes from the United Kingdom (UK) as shown in Box 4.1.

Box 4.1 SYSTEMIC COLLABORATION IN THE UK

A Knowledge Transfer Network (KTN) is a national network in a specific field of technology or business application that brings together people from businesses, universities, research, finance and technology organisations to stimulate innovation through knowledge transfer.

Knowledge Transfer Networks have been set up to drive the flow of knowledge within, in and out of specific communities. KTNs have been established and are funded by government, industry and academia. They bring together diverse organisations and provide activities and initiatives that promote the exchange of knowledge and the stimulation of innovation in these communities. There are currently 15 KTNs with an industry value chain focus including materials, industrial biotechnology, and electronics/sensors/photonics.

The specific aims of a KTN include the following:

- To deliver improved industrial performance through innovation and new collaborations by driving the flow of people, knowledge and experience between business and the science-base, between businesses and across sectors.
- To drive knowledge transfer between the supply and demand sides of technology-enabled markets through a high quality, easy to use service.
- To facilitate innovation and knowledge transfer by providing UK businesses with the opportunity to meet and network with individuals and organisations, in the UK and internationally.
- To provide a forum for a coherent business voice to inform government of its technology needs and about issues, such as regulation, which are enhancing or inhibiting innovation in the UK.

The KTNs are now hosted on **_connect**, a powerful digital networking platform. **_connect** facilitates open innovation, where people can network, share information and knowledge and work together securely. They utilise online tools to work collaboratively, discuss ideas and find events.

Building on regional strengths

As discussed in section two, Australia is becoming less constrained by its ‘tyranny of distance’ and more propelled by its ‘power of proximity’ – relating to both urban concentrations and growing Asian markets.

Section two discussed how real economies are regional rather than national. Success in traded industries very often involves clustering, either horizontally at the regional level or vertically within value chains.

Clusters (and networks) can support large and small firms to pool and access various specialised resources, such as investment, facilities and specialist skills. They can make it easier to transact efficiently, share technologies and knowledge, start new businesses, and access and apply the ideas of others.

Clusters are essential to successful firms, industries and economies.⁴⁰ The critical mass associated with clusters explains much of the difference in productivity and innovation performance across regions and nations.⁴¹

The strongest clusters are found in the leading regions of large advanced economies such as the USA, Japan and Germany, and in smaller economies on the periphery of large markets, eg. Sweden, Switzerland, Singapore and Taiwan.⁴²

The spillover effects of clusters still flow mostly within industry and within region – where collaboration is easier. However, clusters also benefit the wider economy: ⁴³

- Industries in strong clusters have higher jobs and wages growth, while their higher start-up and patenting rates support innovation.
- Industry performance is stronger when the region has strong clusters in related areas, and when similar clusters are present in adjacent regions.
- New industries are more likely to emerge in a strong cluster environment, and in industries relating to a region's existing strengths.
- Other industries benefit from being surrounded by strong clusters.

The Global Competitiveness Report ranks Australia 37th for its cluster development, with existing policies paying little regard to critical mass and regional specialisation.

As Roy Green has noted:

“A key challenge, with particular salience for Australia, is to link foreign direct investment (FDI) to the development of clusters and networks, providing local enterprises with a platform to penetrate international markets while enhancing the value of the FDI subsidiaries.” ⁴⁴

Australia has little time to waste in leveraging its own unique advantages to build critical mass. Competition in these areas is intense, as other governments offer significant financial and facilitation support for large-scale clustering efforts.

Two examples relevant to Australia, taken from the UK and Singapore, are outlined in Box 4.2 for comparison purposes.

Box 4.2 INNOVATION HUBS: UK AND SINGAPORE APPROACHES

UK: TICs / CATAPULT CENTRES

The UK Government is establishing seven elite Technology and Innovation Centres (TICs) – now called Catapult Centres.

TICs reflect the Hauser Review proposal for ‘an elite group of Technology and Innovation Centres ... to exploit the most promising new technologies, where there is genuine UK potential to gain competitive advantage.’⁴⁵

Each Centre will be a business-academia partnership, with funding split three-ways between public funding, competitive public-private funding and private contract funding.

Centres are in high value manufacturing, cell therapy, offshore renewable energy, satellite applications, connected digital economy (ICT, software, digital content), future cities (planning, sustainability) and transport systems.

The high value manufacturing centre opened in October 2011, and aggregates competences across a distributed network of seven centres.

Business benefits from access to expertise and equipment otherwise beyond reach.

Catapult Centres are overseen by the Technology Strategy Board and are linked through an open online national network.

TICs have autonomous, business-led Boards. They will aim to de-risk business innovation, consistent with an emphasis on business pull, over technology push. ⁴⁶

SINGAPORE: BIOPOLIS AND FUSIONOPOLIS

Singapore has focused a large element of its national innovation agenda on two large-scale greenfields developments: Biopolis and Fusionopolis, focusing on innovation opportunities arising from, respectively, biomedical sciences, and physical sciences and engineering.

The centres are co-located with facilities such as INSEAD's Asia Campus, global high-technology companies, and relevant government agencies and research institutes.

While impacts are hard to attribute directly, Singapore has lifted the quality of its scientific research and attracted global talent, helping to position it as a bridge for multi-national corporations into Asia and as a service provider into Asian supply chains. It has also seen rapid growth in patenting activity and joined the top ranks on measures of cluster collaboration and the local availability of specialised research.

However, the cost effectiveness of these large-scale investments into new industries is less clear. They raise fundamental questions about positioning in the global economy, with some questioning whether Singapore can realistically build a global leadership position in next generation scientific breakthroughs.⁴⁷

This view suggests that Singapore may have been wiser to leverage its existing strengths as an attractive location for firms and people, while using its business services capabilities to adopt and adapt the body of knowledge that has been developed elsewhere.

Value chain strength

Global supply chains are increasing their share of world trade.

Large firms are pursuing supply chain integration, resilience and reliability, while also doing so by accessing distributed specialisation, innovation and flexibility – as they reorganise their set of supplier capabilities in this context.

Partly for the reasons of scale and geography discussed, Australia's penetration of value chains is extremely weak.⁴⁸ This is a real concern, as most collaboration and innovation occurs within these value chains.⁴⁹

Global value chains connect producers with global markets that may otherwise be too complex and expensive to access, and through demanding purchasing standards push intermediate producers (eg. of machinery components) to lift their game. Industry value chains are a critical source of technology and knowledge diffusion, but the involvement in them for most Australian manufacturers remains weak.

Where large manufacturing firms already have value chain improvement projects, they are increasingly looking to their suppliers for innovation on top of efficiency. This has proven particularly effective in Defence. Here, Tier 1 companies such as Boeing, Raytheon and Thales work closely with SMEs to actively nurture them into supply positions. Box 4.3 below exemplifies this approach.

The opportunities for Australian manufacturing firms to adjust to the high cost environment will be greatly facilitated by leveraging up the contribution of large firms. Throughout the past six months some of the most successful case studies the non-government members of the Taskforce examined were of large manufacturers helping SMEs into global supply chains; SMEs utilising large manufacturers to undertake proof of concept trials for new product development and commercialisation of new technologies; SMEs benefitting from the engineering and management expertise of large firms to help drive lean manufacturing and supply chain logistic improvements. We expect to see more of this as SMEs collaborate with large firms on energy efficiency initiatives through the supply chain.

Importantly large manufacturers, their leaders and senior management have a very good understanding of the link between productivity and innovation and can help translate that to leaders in SME manufacturing firms. There is considerable potential for the leaders of large Australian based firms to undertake a dialogue about how these activities and knowledge could be given more critical mass and how a better understanding of these activities could be harnessed in a 'new industry policy' for SMEs. The 'absorptive capacity' of SMEs to identify new information, assimilate it and translate that into commercial outcomes is constrained by a variety of factors. By leveraging the SME/large manufacturer relationship the realised absorptive capacity of SMEs can be enhanced, as it can through a variety of other collaborations that are critical to the future of manufacturing in Australia.

However, there is often a large gap between the capabilities and standards demanded by global value chains, and those of Australian manufacturers – and bridging this gap can involve time and resources on both sides for uncertain returns.

A key policy challenge for Australia is to create more globally oriented, medium-sized firms in the \$25-250 million turnover range, some of whom will then go on to become larger anchors in supply chains (as Cochlear has done for the cluster around Macquarie University in Sydney). Such firms can be critical conduits through which global standards filter down into local supply chains.

Box 4.3 ENTERING GLOBAL SUPPLY CHAINS: A CASE STUDY

EM SOLUTIONS

EM Solutions is a world-leading, Australian-owned company recognised for manufacturing technologically superior microwave modules and systems for next generation broadband communications. Since 1998, the company has been at the forefront in the design, engineering and manufacture of leading-edge R.F. products, systems, and solutions for satellite and microwave communication applications.

EM Solutions integrates its own components across the entire range of microwave frequencies from L-band to Ka-band (1 to 40 GHz) to produce integrated LNB (receiver) and SSPA/BUC (transmitter) modules and Ka-Band Satcom on the Move terminals.

Members of Thales's Industry Engagement Unit (IEU) and the Defence Materiel Organisation's (DMO) Global Supply Chain (GSC) team first visited EM Solutions' in February 2011 to assess the company's potential for entry into the GSC program. As a result of this visit, EM Solutions was invited to attend supplier conferences with Thales in France and the UK in April 2011 and was mentored and coached prior to successful participation. During the supplier conference the company was presented with many Requests for Tenders and was subsequently awarded its first contract, with several follow-on opportunities identified.

The company has subsequently built on these successes, working with Thales Australia on additional domestic opportunities and more recently attending supplier conferences with Thales and the DMO in the USA. A key success factor throughout the engagement has been strong relationships, which have been developed through mentoring, which EM Solutions received from IEU members to overcome any challenges, as well as formal training such as 'doing business with the French' to help the company address specific areas identified for improvement. EM Solutions has developed into a highly capable and responsive company – rapid and professional on contract negotiations, technical discussions and international teleconferences.

Senior Thales stakeholders have remarked that the turn-around is quite exemplary. As a result, EM Solutions is a 'go-to supplier of choice', improving its overall competitiveness in the process.

FERRA ENGINEERING

Ferra Engineering is a Queensland based company who in recent years has worked closely with both commercial and defence customers in the US, including designing, machining and assembling high tech defence and aerospace products for The Boeing Company.

As part of their ongoing effort to be a better partner and improve lead times, Ferra opened their first warehouse outside of Australia right on the doorstep of Boeing's commercial operations in Seattle USA. The intent was to satisfy emergent Boeing supply requirements for Boeing Commercial Airplanes (BCA) and Boeing Defence Systems (BDS). By developing their own distribution centre Ferra has realised significant reductions in export delivery times and price competitiveness. In close collaboration with Boeing, Ferra monitors spares' annual consumption rates, which in turn has enabled Boeing to reduce its inventory and working capital costs.

Supported by both State and Federal Governments Ferra has also assisted with the establishment of a chemical processing facility in partnership with Lovitt Technologies. This facility is expected to come on line in 2012 and it is anticipated that it will reduce both price and lead times even further in export manufactured parts for BCA and BDS.

By providing competitive pricing and reduced lead times to Boeing, Ferra are able to maintain a strong export business in the aerospace industry. Ferra currently manufactures over 1,000 different part numbers for BCA and BDS collectively with over 3,600 parts delivered in the last twelve months. Ferra Engineering is an active and successful participant in the DMO Global Supply Chain program. With the support of this program Ferra has been able to establish themselves as the key supplier for Boeing's F/A-18 Super Hornet rudder pedal kits. On the strength of their supply agreement with this defence prime, Ferra have established a dedicated work cell and production team in Australia for the F/A-18 rudder pedal kits to ensure on-time delivery to Boeing.

Boeing Research & Technology Australia (BR&T-1. is also collaborating with Ferra on lean manufacturing process improvements in the machining of hard metals. As a result Ferra Engineering is involved in two innovations that Boeing feels has great potential to significantly reduce the costs of titanium machined parts for both defence and commercial applications. With the support of the Global Supply Chain program and in collaboration with BR&T-A, Ferra is working to commercialise a new way of machining costly titanium parts through a process called Laser Assisted Machining which allows more rapid machining of titanium as well as reducing tool wear. Ferra is also working on advancing their titanium deposition process which promises to greatly reduce costs by eliminating the waste associated with machining from billets or forging. Ferra was duly recognised with a Boeing Supplier of the Year award in Seattle in April 2012.

Some government initiatives, such as the Resource Sector Supplier Envoy and the Automotive Industry Envoys, support Australian businesses to penetrate national and global value chains. However, these remain the exception rather than the rule even in large industries.

Moreover, emerging value chains in areas that bridge industries and regions – such as the extended resources sector, Asian food markets, the cellulose fibre ecosystem and additive manufacturing – receive little systemic support.

The Advanced Manufacturing Cooperative Research Centre (AMCRC) highlights the magnitude of the scale challenge for Australian firms: ⁵⁰

“The international market is becoming more structured. Large companies in automotive, aerospace and defence don’t want to deal with companies the size of Australia’s SMEs. They only wish to deal with fewer and fewer Tier 1 suppliers. Australia has no Australian owned Tier 1 suppliers. The Tier 1 suppliers also wish to reduce the number of their Tier 2 suppliers. Global competitiveness is pushing the risk taking activity of R&D towards collaboration and open innovation. Australia has lots of SMEs (mainly Tier 3s in the global context) who struggle to fund R&D and who struggle to fund the challenge of exploiting global markets.”

While challenging, some Australian manufacturers are diversifying both their offerings and their markets to overcome such obstacles, as per Futuris in Box 4.4.

Box 4.4 A CLEAR COMMITMENT TO GLOBAL GROWTH: A CASE STUDY

THE COMPANY

Futuris is a leading Australian automotive components manufacturer with annual sales of circa AUD \$400 million with 900 employees in Australia (250+ in technical roles). The company designs and manufactures automotive seating and interiors, providing innovative solutions for both mature and emerging automotive markets. From a design and engineering base in Port Melbourne, Futuris has rapidly expanded into China, Thailand, South Africa and North America, with further growth underway in all regions.

THE CHALLENGE AND THE OPPORTUNITY

Futuris is successfully diversifying its business through international growth in the automotive sector. Futuris commenced its international growth strategy in 2005 when it undertook a comprehensive review of the China automotive sector in collaboration with Austrade. Through a willingness to share technical and management know-how in return for long-term contracts to supply automotive seating, Futuris established a range of joint ventures in what has become the largest vehicle production market globally.

Export of innovation, design and development from Port Melbourne continues to be Futuris’ competitive advantage and has led to further manufacturing contracts being awarded in China, Thailand, South Africa and North America. Futuris’ primary automotive customers include GM, Ford, Toyota, Chery, JAC and Tesla.

With the increasing global trend towards sourcing single global suppliers for supply into multiple regions, Futuris is implementing a strategy to deliver this required global scale and cap-ability. Recently Futuris has also started to diversify into the cleantech, transport and infrastructure sectors in Australia, leveraging core strengths in automotive design and manufacturing.

LESSONS LEARNT AND LOOKING FORWARD

Winning global supply contracts and establishing international businesses requires vision and strategic planning, as well as very significant investment in time and resource. Key to Futuris’ success has been its heavy investment in R&D capabilities, a flexible and partnership based business model with new customers, competitive local manufacturing, strong leadership team and a well-considered strategic growth plan.

Futuris is capitalising on the company’s close proximity to the largest growing automotive and manufacturing sectors in China, India and the ASEAN regions. Using highly skilled engineers, the company is designing and developing systems around next generation electric vehicles for example with Tesla in the USA and others around the world. Futuris utilised Austrade representatives for market knowledge and relationship building to take advantage of market opportunities in these regions.

Australian SMEs need large firms and large firms benefit from a larger pool of strong SMEs in their supply chains. Australia's lack of medium sized firms places greater importance on maintaining Australia's large locally owned manufacturers – as these firms provide the critical mass of Australian manufacturing.

What is lacking within current policy settings is the recognition of the costs and risks involved in strengthening connections. It does not just happen automatically.

BUILDING BUSINESSES: UNLEASING THE DEMAND SIDE

While value in our economy is ultimately added by businesses, in Australia, researchers remain the focal point for what we label innovation policy. Australia's innovation system is geared primarily towards investing in the supply side. This reflects one of the critical misunderstandings of innovation itself, as Smith and West (2007) reflect: ⁵¹

“Perhaps the most important result of modern innovation research is the rejection of the so-called ‘linear model’ of innovation, namely the idea that the innovation process is essentially based on processes of scientific or technological discovery, and that the innovation process consists of translating research into new products.”

The systemic problems in the culture and rewards systems of the research sector are a symptom of a larger framing problem – a supply-side, science-push model of innovation that is many years out of date, does not reflect the way most Australian businesses innovate and yet has prevailed in Australia for at least the past 15 years.

In 2011-12, the Commonwealth Government invested \$9.4 billion in research and innovation efforts under its Powering Ideas strategy. With its supply-side emphasis, it is not clear that business or the nation is getting sufficient return on this investment.

Rather than just powering ideas, Australia needs to be powering innovation. As discussed, it is innovation that drives greater prosperity and more jobs for Australians.

This is not an argument against research. There are some issues that demand a long-term research effort. And it is well established that a strong and broad research base underpins the knowledge our workforce needs to implement change in business.

The problem is one of balance, one that warrants a large-scale reprioritisation of resourcing and effort to unleash the power of ‘market pull’ as well as ‘science push’.

Who drives innovation?

A fundamental point still not well understood about innovation is that it is done by business. It is the private sector, meeting consumer needs, that innovates to create the wealth that ultimately finances other activities in our economy and society.

Figure 4.1 identifies the sources of innovation in business, confirming the importance of both workplaces and industry value chains – including consumers, suppliers and competitors – for business innovation.

Perhaps the most striking feature of Figure 4.1 is the small direct contribution government agencies, universities and Publicly Funded Research Organisations (PFROs) make to business innovation.

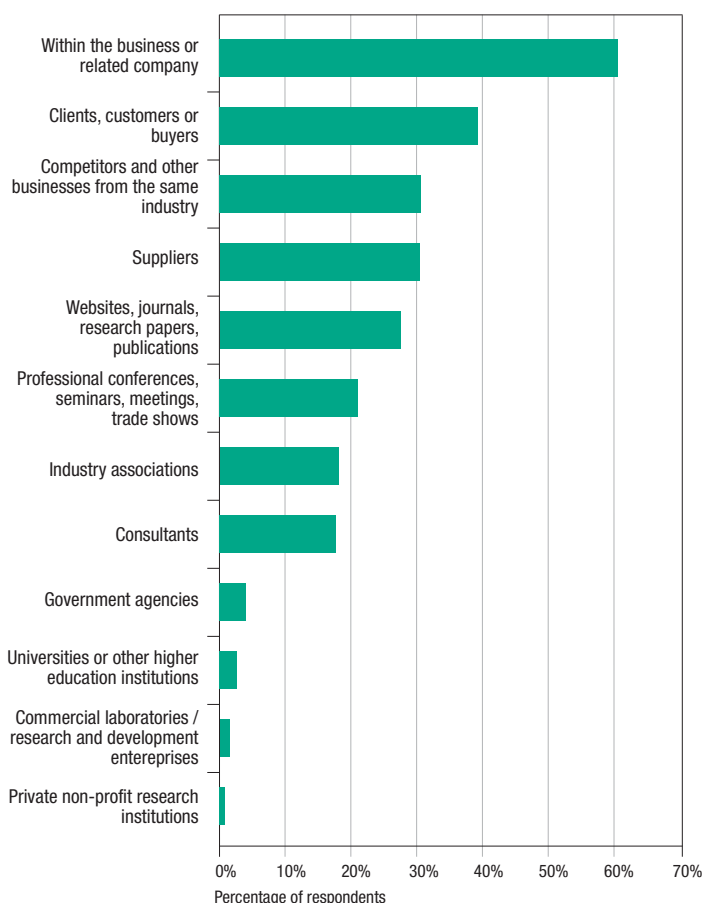
While perhaps surprising, this also reflects the very few effective policies in place to encourage researchers (and to some extent government agencies) to contribute to business innovation.

Figure 4.1

SOURCE OF INNOVATION AMONG INNOVATION-ACTIVE FIRMS

Department of Innovation, Industry, Science and Research. 2011. Australian Innovation System Report 2011. <http://www.innovation.gov.au/AISReport>

Source: ABS (2010) *Innovation in Australian Business 2008-2009*. Catalogue no B158.0



The need for new research partnerships to support business innovation

As discussed, Australia's research system has not been designed to meet the need for business innovation.

Businesses find researchers and research organisations difficult to deal with, with a view that they are excessively protective of their intellectual property (IP) so that it is difficult to access and is often prohibitively priced. Much of what researchers do is not geared to industry needs, but instead competes in the research world on the basis of their peers' views not the market's view. Within research organisations, researchers' efforts in working with businesses are not recognised and rewarded to the same extent as their pure research efforts.

Given the risks and costs involved, businesses generally choose not to invest in accessing relevant knowledge from universities and PFROs.

From the research perspective, PFROs also find that it is not cost-effective to deal with businesses and particularly with SMEs, as it often involves a large resource commitment for limited return.

Shifting systems and cultures more towards the demand-side is critical to the long-term prospects of manufacturing, but firms do not have time on their side.

Systemic change is required here, with options including refocusing reward and recognition arrangements to encourage greater attention to collaboration with business, ensuring that organisational missions reflect the need to support business innovation, opening Australian Research Council (ARC) grants to more business led arrangements, introducing industry outcomes into research assessment, and more structured and regular personnel exchanges between business and PFROs.

The need for public private partnerships to support business innovation

Innovative firms sense and capitalise on emerging as well as existing market opportunities. Emerging markets are a major source of innovation, and include new sources of demand for innovation from government agencies. In addition to the new demands emerging with the Asian Century, medium-term demands are emerging with more demanding citizens, ageing populations, and systemic resource constraints in areas such as energy, water and food.

Society's needs – for better and more personalised models of services and care, for smarter and cleaner models of development, and for resource and national security – are generating new markets in need of innovation.

Many of these demands will not be met by markets alone, but rather are heavily shaped by government policies, whether regulation, procurement or market design. In such markets, purchasing strategies of lead customers heavily shape how markets evolve and whether the demand and opportunity for innovation emerges within them.

Well-designed partnership programs recognise the gap between current knowledge and societal needs – and seek pathways to bridge it. Such partnerships recognise that neither government nor business have the skills to do this alone.

Such partnerships deliver multiple benefits: they get innovative firms over the 'valley of death', while ensuring cost effectiveness by making funding conditional on progress (known as stage gating). They adopt a portfolio approach that develops solutions (products and services) by allocating costs and risks efficiently to 'pull through' innovation from the market.

There are a number of obvious policy areas involving elements of manufacturing in which such partnerships are likely to be significant for the Commonwealth:

- **Clean economy:** Australia's breadth of natural advantage in areas such as energy, resources, water and forestry make the clean economy an outstanding innovation opportunity.
- **Health:** Australia's medical technologies firms are already establishing themselves in global value chains, and many more opportunities exist. The current review of NHMRC funding is an opportunity to consider innovation incentives that are more demanding in the quest for practical outcomes.
- **Defence:** Leading global and Australian defence firms are already playing central roles in local supply chains, prompted by government playing either a purchasing or market design role. Advanced local capabilities are likely to be needed, if for no other reason than rising security uncertainties in our region.
- **Broadband:** Australia's leadership in high-speed broadband, as well as the practical challenges it faces in terms of scale and geography, provides ample opportunity for business model innovations that capture the benefits of collaboration. There are many creative firms in this category, many of which currently feel compelled to move abroad in order to grow.

Government agencies, if they can clearly articulate demands and needs on behalf of society, can simultaneously enlist and support entrepreneurship. Such partnerships do more than develop solutions for society. They play a large role in expanding the pool of innovative firms, enhancing Australia's ability to penetrate large industry value chains, and driving export opportunities.

In the USA, the Small Business Innovation Research (SBIR) program provides by far the largest pool of early stage capital – a market largely missing in the Australian context – and an educated buyer for the solutions developed by participating SMEs.

Relatively few high-impact SMEs means few medium-sized success stories

An extensive body of evidence highlights the disproportionate contribution high-growth firms make to overall economic performance. Many small businesses – 50 per cent according to one survey – simply do not aspire to grow.⁵² Professor Göran Roos suggests that the proportion of SMEs that have realistic prospects for growth is lower still, at around 15 per cent.

In the UK, the 6 per cent of businesses with the highest growth rates generated half of the new jobs created by existing businesses.⁵³

The challenge for Australia does not appear to be entrepreneurship per se. On the Global Entrepreneurship and Development Index, Australia ranks 3rd globally (having ranked 11th in 2011), behind only the USA and Sweden. Australia rates very well on business risk, access to technology and corruption levels, but is very weak on the proportion of firms that expect to grow, the fear of failure and technology-based entrepreneurship.

And while Australia rates highly for business start-ups, the manufacturing sector has the second lowest rate (with only farming having a lower level). The problem does not seem to be entrepreneurial attitudes or activity (where Australia ranks 1st and 3rd respectively). The problem is one of low entrepreneurial aspirations, that is, the lack of an ambitious, strategic and global mindset.

More detailed analysis confirms familiar weaknesses that relate to this – a low proportion of entrepreneurs with advanced degrees and limited export orientation.⁵⁴

The lack of firms growing to be medium-sized, globally-oriented firms is a systemic problem for Australia’s ability to bridge the gap between leading standards of technology, management and design and local practice.

High growth firms are distributed across all sectors and regions, among firms of different sizes and in stagnant as well as growing economies. And high growth firms in one period of time do not necessarily hold that status into the next.

What distinguishes high-impact firms is their innovative activity, as seen in Box 4.5.

Box 4.5 HIGH IMPACT FIRMS

The key distinguishing characteristic of high growth firms is innovative activity. Aspects of their behaviour and external outlook are also insightful. High growth firms are significantly more likely to:

- recognise changing patterns of innovation before others;
- be driven more by market demand than by research;
- export – whether ‘born global’ or ‘going global’;
- utilise skills beyond technology – they also focus on the management skills needed to forge new business models, design skills to develop new products and marketing skills to connect with new consumers and markets;

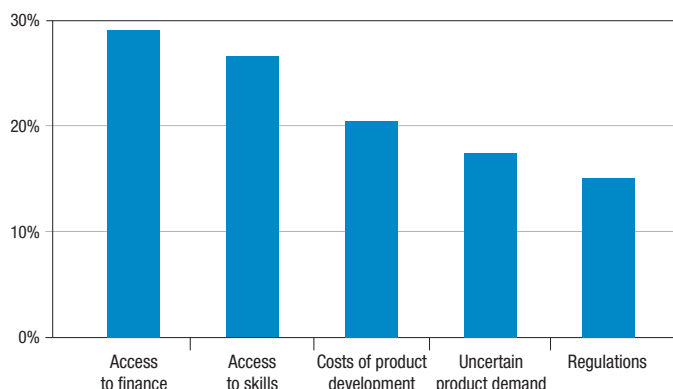
- be conduits for the diffusion of global best practice and new opportunities for domestic firms through linkages with global value chains;
- be innovators rather than merely inventors – demanding higher standards and focusing managers on adopting and adapting external knowledge;
- recognise emerging opportunities within their industries before other firms;
- be focused on solutions rather than products or services.

High impact firms manage to overcome many of the general barriers to innovation faced by SMEs. The most significant barriers are shown in Figure 4.2.

While the non-government members of the Taskforce do not believe that high growth firms should be the sole focus on business support – including for reasons outlined below – there is a need to better reflect the importance of high-growth manufacturing firms to the economy.

Figure 4.2
BARRIERS TO FIRM-LEVEL INNOVATION, AUSTRALIA

Source: ABS Cat. 8158.0, Innovation in Australian Businesses 2008-09, 25 August 2010, data is per cent of respondents indicating issue to be a major barrier to innovation.



Lifting the long tails through access to knowledge and resources

Australia has a long tail of underperforming firms and workplaces. Even modest gains here could have a large overall impact. Significant ‘low hanging fruit’ is not being picked.

Many of the challenges facing low performing firms and workplaces reflect failures to implement even mainstream technologies and practices. They need to apply this knowledge well, not invent the next big thing.

Generations of computerised production equipment, from machine tools to highly automated flexible systems incorporating machining centres and robots, can significantly affect productivity. Digital and additive manufacturing will extend this.

The Management Matters⁵⁵ survey identified that many manufacturers struggled with relatively basic activities such as lean manufacturing, let alone more sophisticated variants such as Six Sigma. Similarly, developments in e-business, logistics and operations technologies such as Enterprise Resource Planning (ERP) add to the potential of new technology, but are still not practiced by many manufacturing firms.

SMEs need easy access to the knowledge and resources to bridge this gap between mainstream knowledge and current practice. This access is currently provided through Enterprise Connect, Commercialisation Australia, Austrade, Supplier Advocates, various state-based business support services and online vehicles such as the Business Entry Point.

What is lacking is an integrated, seamless service model that can be tailored to the specific needs of an individual SME – while also allocating limited resources in a way that makes the largest overall contribution to the economy.

DRIVING COLLABORATION: NEW CAPABILITIES, NEW CULTURES AND COMPETITIVENESS

Alongside system design that supports applied knowledge and market pull, the ability of our economy, our firms and our workplaces depends on our capabilities. The absorptive capacities of firms reflect a range of skills: not just scientific and technical, but also managerial and creative skills (such as in design and marketing).

Moreover, realising the benefits of innovation requires cultural change that embraces collaboration and innovation. This requires not only new skill sets, but new mindsets. Part of this mindset shift is the willingness to openly engage internally and externally. This is a challenge, particularly in workplaces, where the tradition of many has been to look to rules rather than relationships to find common cause.

Significant change will be required in many businesses if managers and workers are to build a culture of not only managing change, but continuously pursuing innovation.

Absorptive capacity

Applying knowledge demands that firms have absorptive capacity. As the Australian Treasury explains:

“(T)he ability to use particular skills and knowledge in the production process, not merely acquiring them, is what really matters for productivity and income.”

Significantly, it is people and technology together that drive unique products, services and solutions. Higher skill levels and greater utilisation of technology have been observed to go together in all industries and regions in advanced economies.⁵⁶ Firms that develop these capabilities, or leverage them through internal or external collaboration, will enjoy a competitive edge over those that do not.

Manufacturing SMEs require assistance to improve absorptive capacity, and to develop a foundation of in-house knowledge that allows them to recognise, evaluate and apply knowledge.⁵⁷ This falls heavily on the skills of managers and workers.

New capabilities: management and creativity

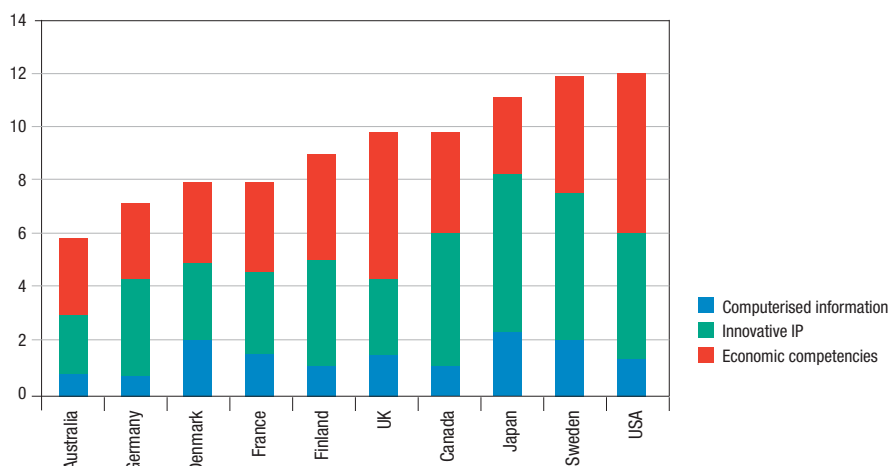
There has been growing interest in the role of intangible assets for productivity. Beyond R&D and education, such assets encompass areas such as software, management, design, branding and marketing. These areas, involving systems and soft skills, are most important for nations (such as Australia) where patterns of specialisation and limited scale constrain R&D-based innovation.⁵⁸

While manufacturing is responsible for a large share of R&D investment, less attention is paid to non-R&D innovation spending.⁵⁹ The latter is important for competitiveness,⁶⁰ particularly in a high cost environment where such capabilities are needed to create differentiated product and service mixes that cannot easily be replicated.

Intangible assets are broadly defined as computerised information, innovative IP and economic competencies.⁶¹ Figure 4.3, comparing Australia's investment in intangible assets with peer economies, exposes a serious competitive challenge for Australia.

Figure 4.3
INVESTMENT IN INTANGIBLE ASSETS, SELECTED NATIONS
% of GDP

Source: OECD, Science, Technology and Industry Scoreboard



The Productivity Commission finds that Australia trails peer economies across all classes of intangible assets, rather than simply in one area.⁶² However, two capabilities particularly relevant to manufacturing do stand out:

- **Management:** Australia rates lower than other high-cost economies, with skill-intensive firms rating higher. However, the challenge of people management stands out among Australian manufacturing firms, suggesting a need for new capabilities and cultures shaping how organisational capacity, workforce skills and technology absorption support high-performance workplaces.⁶³
- **Creativity:** While Australia ranks well on some creativity measures, creative output is a specific Australian weakness that spans both creative intangibles and creative products and services.⁶⁴ No Australian design school features in the world's top 60 and Australia lacks global leaders in this field.⁶⁵ At the same time, new business models are emerging that integrate design with marketing and software capabilities to forge solutions for new Asian and online markets. Such capabilities will be critical to the differentiated products and solutions that Australian manufacturing firms will need to grow.

As the Productivity Commission explains, managerial and creative capabilities matter in Australia's 'adopt and adapt' model of innovation:⁶⁶

“Organisations need people who can develop new and better ways of doing things, including through adopting and adapting existing knowledge and technologies. Managerial skills are a critical input into innovations in organisational practice, while creative talent enables the development of new products as well as engaging client interest”.

Despite recognition of the importance of management and creative capabilities, there are only niches of policy activity that recognise their value to business innovation.

Management – a critical success factor

Management Matters, with a high-profile global study examining the impacts of management practices on firm level productivity, concluded that:⁶⁷

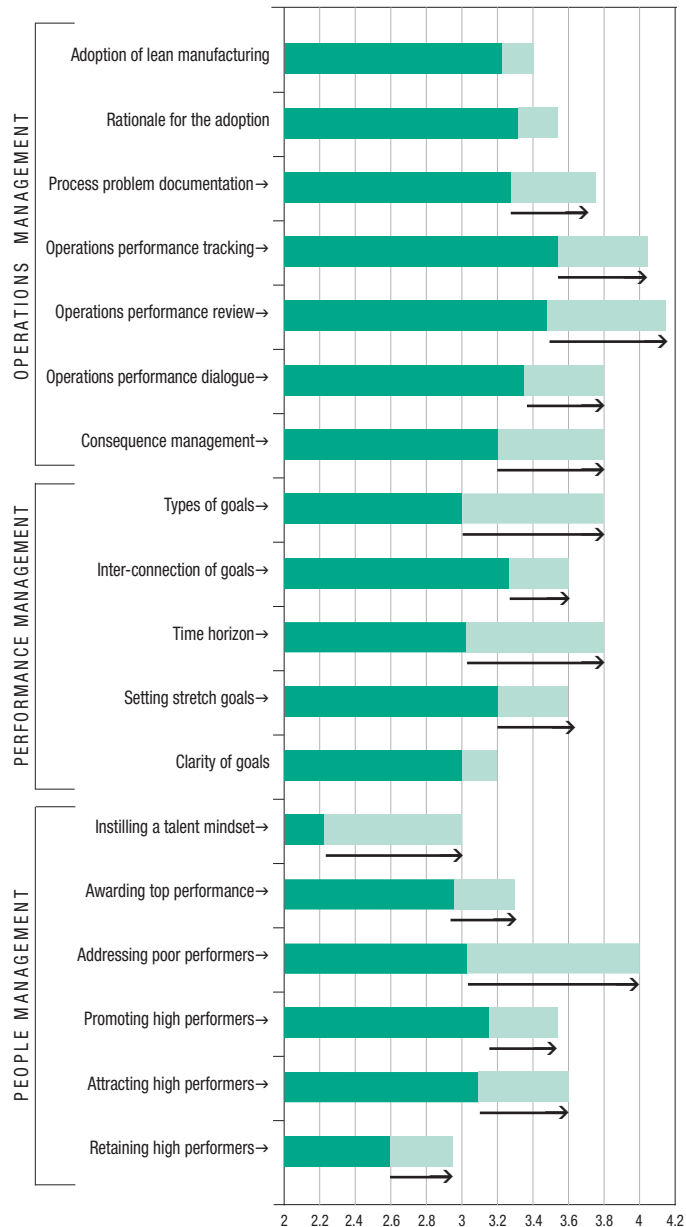
“Governments can play their part in encouraging the take-up of good management behaviour. Doing so may be the single most cost-effective way of improving the performance of their economies.”

The 2009 Management Matters ⁶⁸ survey applied this methodology to examine management in Australian manufacturing firms.

The areas of management practice measured – operations management, performance management and people management – are generally mainstream rather than advanced practice. Results relative to global best practice are in Figure 4.4.

Figure 4.4
WORKPLACE CULTURES AND PERFORMANCE

Source: University of Technology Sydney, London School Economics and Macquarie School of Management, *Management Matters in Australia: Just How Productive Are We?*, Department of Innovation, Industry, Science and Research, 2009.



The survey revealed a general weakness in people management, but also exposed where the gap between best practice and current performance is greatest:

- **Instilling a talent mindset:** Senior managers prioritise attracting, retaining and developing talent, and are held accountable for building talented teams.
- **Addressing poor performance:** Poor performers are moved to less critical roles or out of the company as soon as weaknesses are identified.
- **Types of goals set:** Goals are a balance of financial and non-financial, and are not exclusively operational.
- **Time horizon:** Short-term goals are set so that they can provide a pathway to long-term goals, but both timeframes remain in focus.

The findings reveal significant room for improvement. They suggest a management mindset that places too little focus on people, performance and the future. The report also found that strong management performance was associated with large firms, especially multinationals, highly skilled workers and transparent corporate governance. These findings also pose challenges – given Australian manufacturing’s domestic focus, small average firm size, lower than average proportions of high skilled workers and significant number of family-run firms.

Given this, it is no surprise that greater variability in management performance was found among Australian firms than those overseas, with a long tail of poor performers.

A skilled workforce

Skilled workers with scientific, managerial and creative skills fuel innovation, develop new products, processes, markets and inventions, and find new ways of using existing ideas.⁶⁹ They exploit opportunities that present themselves in existing systems and practices, and are critical to the absorptive capacity of manufacturing firms.

Australia’s strong science, research and higher education base makes our universities a key supplier of the high skilled workers that drive innovation.⁷⁰ This includes not only STEM skills (science, technology, engineering and mathematics), but also skills in areas such as management, design and marketing.

Australia’s strong multicultural tradition and large number of highly skilled and educated foreigners provide us with a great head start in attracting talent from overseas. The OECD argues that such strengths are very often decisive.⁷¹

It is notable that independent reviews of competitiveness in both New South Wales and Victoria recommended that they develop new mechanisms to attract top global talent with specialist expertise in areas of regional comparative advantage.⁷²

In Australia, concerns have repeatedly been raised about a shortage of scientists and engineers. A recent report from the Office of the Chief Scientist reveals that young people are not always seeing science to be ‘useful’ or ‘relevant to the future’.

Using results of the Programme for International Student Assessment (PISA) which measures the knowledge and skills of 15 year olds in disciplines of reading, problem solving, and mathematics and science, the OECD⁷³ has modelled the economic gains to be achieved from higher PISA scores. If Australia raised its PISA scores by 25 points over the next 20 years (which is less than the most rapidly improving education system in the OECD achieved between 2000-6; Poland) then Australia’s GDP could be expected to increase by US \$2.5 trillion during the life time of those born in 2010.

Many Australian workplaces suffer from skills deficits at multiple levels. In addition to advanced skills, a pressing concern is the large cohort of Australian workers with low literacy and numeracy skills. These workers are most vulnerable to economic change.

Despite the availability of funding through demand-driven skills reforms, not enough is being done to equip these workers for change. There is a need to ensure that system design is delivering them the skills that they and industry need, and that both firms and workers are actually taking advantage of the new opportunities. Industry Skills Councils can provide support to industry to pursue these opportunities.

Workplace change – culture as well as capabilities

For Australian manufacturing to improve its competitiveness, its workplaces need to be operating at globally competitive levels of productivity. At present, most are not. High performance workplaces have received significant research interest internationally and have the focus of prominent recent research in Australia, the first serious effort of this kind since the Karpin Report of almost twenty years ago.

Recent Australian research described high performance workplaces as follows:⁷⁴

“High performance workplaces are characterised by a set of shared values and beliefs where people welcome and seek to introduce change and innovation, where leaders care for their employees and foster collaboration, and where there is an ambition to deliver results and a focus on achieving goals.”

This same study identified the three most significant barriers to high performance workplaces (and all work-places) as:⁷⁵

- motivating the workforce to assume greater responsibility;
- being able to retain highly talented individuals;
- creating a flexible and responsive workplace culture.

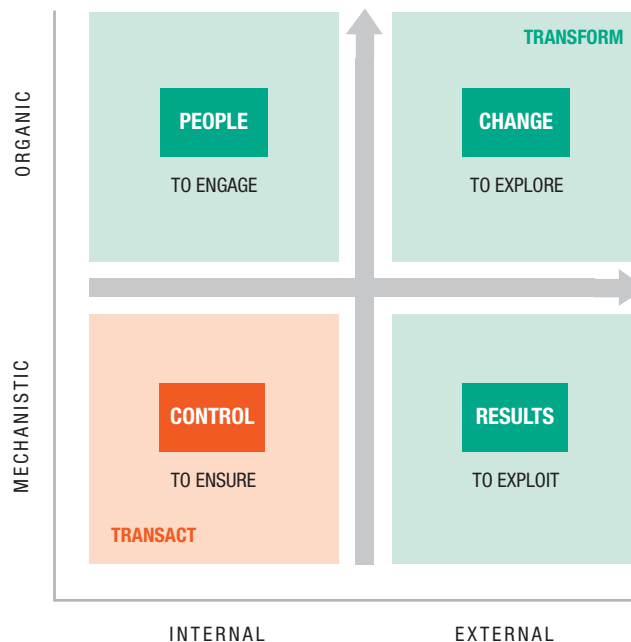
It is notable that these barriers to better performance cannot be readily fixed by changes to workplaces rules and regulations, the traditional focal point for discussions of Australian workplace policies. Rather, the evidence suggests a need to focus on building a culture of continuous innovation.

High performing firms are found to be far more likely than their peers to integrate their innovation focus into managerial strategy and workforce culture. That is, not only practice innovation but embed it within corporate strategy and workplace culture.

Consistent with the Management Matters findings above, a recent study of high performance workplaces found that performance is strongly correlated with models focused on results, people and (particularly) change, but is negatively correlated with models focused on control.

This is summarised in Figure 4.5 adapted from Professor Göran Roos.

Figure 4.5
WORKPLACE CULTURES
AND PERFORMANCE



The shift portrayed in Figure 4.5, from transaction to transformation, is one that many workplaces find too difficult. The starting point for workplaces innovation is a management mindset that loosens its grip of control. This should not come as a revelation:⁷⁶

“By trying to squeeze out better efficiency from improved attitudes and tighter discipline on a person-by-person and department-by-department basis, the approach detracts attention from the structure of the production system itself.”

In practice, many workplaces are not capable of making this shift alone. But neither public institutions such as Fair Work Australia, nor direct stakeholders such as major industry groups and unions have yet ensured that support for the cultural change needed is widely available.

If Australian manufacturing is to remain competitive in a relatively high cost environment, a substantive and shared commitment to innovation is needed, based on developing capabilities, aligning around outcomes, and engaging.

INTERNATIONAL POLICY PERSPECTIVES

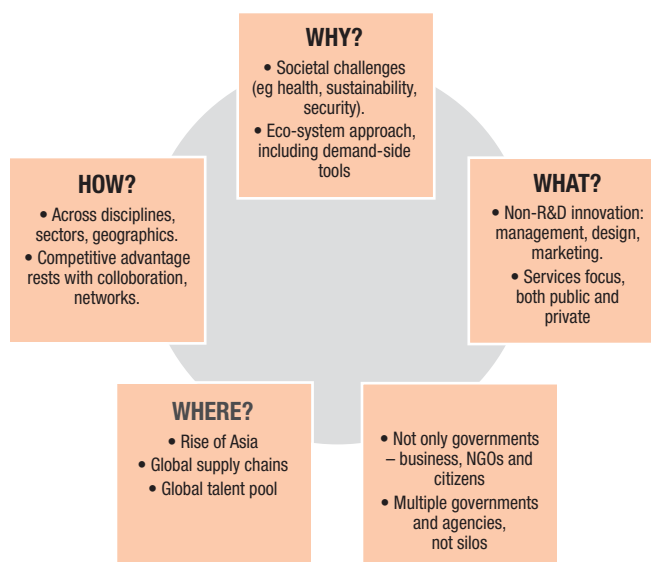
In developing its policy agenda, the non-government members of the Taskforce have considered a range of innovation and manufacturing policies employed by other nations, some of which are detailed in the sections that follow.

The non-government members of the Taskforce have focused particularly on emerging practices and policies. Figure 4.6 provides a summary of these, based on the comprehensive analysis of innovation policies undertaken for the OECD Innovation Strategy. Figure 4.5 shows the emerging ‘why’, ‘what’, ‘who’, ‘where’ and ‘how’ of innovation policies and practices.

Figure 4.6

OECD INNOVATION STRATEGY: NEW DIRECTIONS IN POLICY

Source: Adapted from M. Cervantes, D. Pilat and K. Wilson (2010), *The OECD Innovation Strategy: Findings and Implications*, Stockholm, 11 February 2010.



While Australian policy must be made for Australian conditions, particularly our scale and geography, many of these emerging practices have resonance:

- Employing demand-side tools to prompt innovation for industry and societal purposes, such as health, sustainability, and resource and national security.
- Strengthening the non-R&D drivers of innovation, particularly the intangible managerial and design capabilities that complement scientific capabilities.
- Ensuring that innovation is recognised as a shared responsibility, but also recognising that it is at the Connecting more Australian businesses to global value chains, by getting more firms to scale and strengthening linkages throughout value chains.
- Strengthening networks to exploit collaboration opportunities, both within and across geographies, sectors and disciplines.

Policy strategy requires not only understanding discrete measures, but also an understanding of how they may work together in a manufacturing strategy. The non-government members of the Taskforce have developed three case studies – the UK, Canada and Brazil – to identify recent developments and themes in the development of manufacturing strategies. These are summarised over the page.

The Table gives some indication of the extent to which Australian manufacturing policy is lagging behind that of comparable nations in streamlining business advisory services, forging large-scale research collaborations, expanding SME finance and modernising government procurement to support innovation. In addition to this, the non-government members of the Taskforce have gleaned insight from other nations and regions:

- The ability of small, open nations to use their strategic agility (the ability to plan coherently and adapt quickly) and outward-orientation to their advantage.
- The ability of some nations to exploit the complementarities between high value manufacturing, high value services and natural resource advantages.
- The ability of the Nordic region, with a population similar to Australia’s, to develop diverse regional innovation models that secure innovation and equity.

UNITED KINGDOM

Sector

The UK used to be a leading manufacturing nation, but has slipped over recent decades. The sector creates 20 per cent of national output, employs 4 million people (one-seventh of the workforce) and produces 60 per cent of exports. The UK has a world-class scientific base and remains a leader in high-technology subsectors.

Policy observations

There has been considerable debate within the UK on rebalancing the economy away from an over-dependence on the financial services sector. The Chancellor stated in his 2011 Budget speech that 'We want the words: 'Made in Britain', 'Created in Britain', 'Designed in Britain', 'Invented in Britain' to drive our nation forward. A Britain carried aloft by the march of the makers'.

Recent initiatives

- Revised *Manufacturing Advisory Service* offers tiered services from online inquiries through to transformational advisory services for individual firms and for supply chains.
- The *Advanced Manufacturing Supply Chain Initiative* (£125m) that is supporting supply chain investments in equipment, R&D, skills and collaboration.
- *Catapult Centres* – based on a comprehensive review of applied research, these innovation hubs provide a business-focused capability to bridge research and commercialisation.
- Reform of the *R&D Tax Credit for SMEs*, with the rate raised from 175 per cent to 200 per cent from April 2011 and to 225 per cent from April 2012.
- The *Enterprise Finance Guarantee* offers a loan guarantee of up to 75 per cent on loans of up to £1m for credit worthy SMEs. Manufacturing is the third largest recipient
- The *Technology Strategy Board* oversees and coordinates a range of programs, including *Catapult Centres*, *Knowledge Transfer Networks*, *_connect* and the UK equivalent to *SBIR*.

CANADA

Sector

Canadian manufacturing is slightly larger than Australia's as a proportion of their economy and has declined less rapidly over the last two decades. Its manufacturing sector is more integrated into American supply chains, and over 50 per cent of manufacturing exports derived from high or medium-high technology firms.

Policy observations

Canada has generally focused on supply side measures to drive productivity, and has committed to make Canada the first tariff-free zone in the G-20 for manufacturers. At the province level there are a variety of approaches, particularly in Ontario (whose manufacturing sector is larger than Australia's). Canada has assertive industry participation initiatives around their resource sector.

Recent initiatives

- *Small Business Financing Program*, a loan loss-sharing program between the government and private sector lenders that facilitates access to finance.
- *Industrial Research Assistance Program (IRAP)*, a network of advisers through all stages of the innovation process, offers a range of supports.
- A major 2011 review of national policy has also proposed:
 - Clear *business innovation mandate* to be given to new Industrial Research and Innovation Council, a new *whole-of-government program delivery vehicle*.
 - *Large-scale collaborative R&D Institutes* in areas of strategic importance and opportunity for the economy.
 - A national *'conciierge' service* and website to help firms find and access the support and tools they need.
 - Measures to expand *risk capital* for firms with high growth potential a *commercialisation vouchers* pilot.
 - More active procurement, with enhancement of the *Canadian equivalent of SBIR*.
 - *Innovation Advisory Council* to monitor implementation.
 - Many of these measures to be funded by a reduction to the *R&D Tax Credit*.

BRAZIL

Sector

Brazil's manufacturing industry makes up 15 per cent of the Brazilian economy and produces around 60 per cent of exports. Recent performance suggests it is under competitive challenge – the sector has not grown for some years and the trade deficit in the manufacturing industry in 2011 grew 37 per cent.

Policy observations

The government takes an extremely active role in manufacturing policy through its Brazil Maior ('Bigger Brazil') initiatives under the slogan 'Innovate to Compete, Compete to Grow'. The goal is to grow manufacturing and reduce the impact of the high Brazilian currency. Critics note that taxes, labour and energy costs are high, infrastructure and education and training is patchy.

Recent initiatives

- Around \$12 billion to expand *industrial loan programs* for machinery and equipment.
- A new PSI program provides *loans for investments that promote technological and production capacity* for products not currently manufactured in Brazil and new programs for components and specialised technical services; and ICT equipment produced in Brazil with national technology.
- The creation of a *private export financing fund* for companies with revenues of up to \$60 million.
- *Increase of taxes* of 30 per cent on imported cars, taxes now between 37 per cent and 55 per cent.
- *Government procurement* – a 25 per cent margin of preference in the bidding process for Brazilian manufactured goods and services that meet national technical standards.
- Quadrupling of the number of *anti-dumping* investigators.
- Removal of Brazil's 20 per cent payroll tax. The *payroll tax* will be replaced by a tax on gross revenues at the rate of 1 per cent for industries and 2 per cent for service sectors.

The policy framework

The policy framework outlined in Figure 4.7 is informed by Australia’s key policy challenges and the lessons other nations’ experience offer us. The strategy is based on the unique needs and characteristics of Australian manufacturing, and premised on the need for a broad-based national economy. Its core theme, **Smarter Manufacturing for a Smarter Australia**, is a call for both action and aspiration:

- The essential contribution of a thriving manufacturing sector to the long-term health of the economy and the nation.
- Our culture of applying knowledge, or practical problem solving, as an asset that can focus us on value adding in a high cost environment.
- Our need to prepare and position for a new Asia, one that is generating both new knowledge and new demands at a rapid pace.
- The need to lift our sights, our expectations and our aspirations – both for how the world sees Australia and for how we see ourselves.

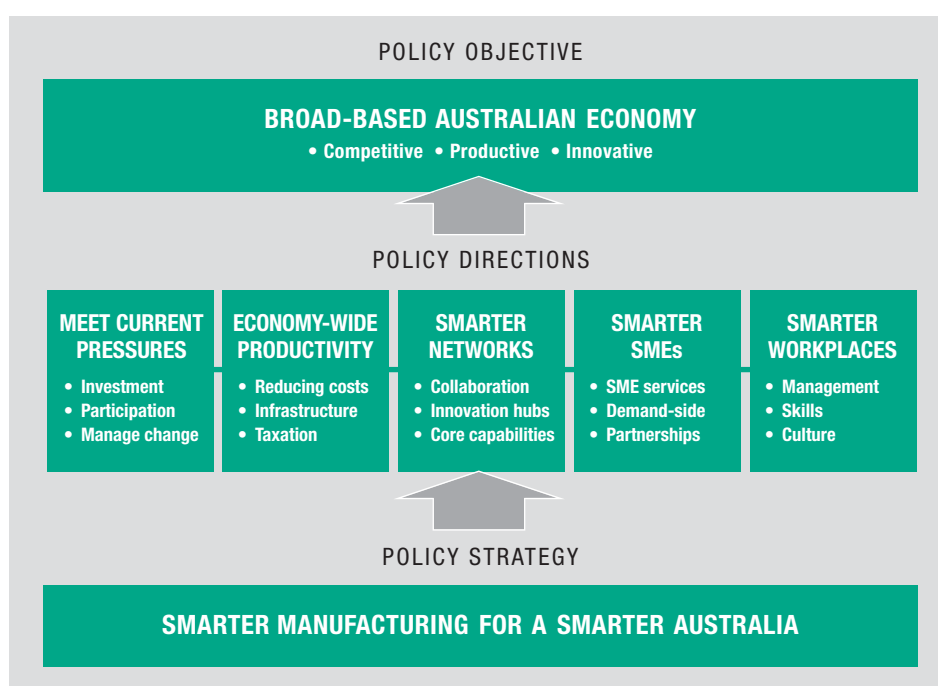
The strategy is based on building up and out from our existing strengths, though always with an eye to the future. While it calls for a degree of policy boldness, it is grounded in practical measures today that can drive systemic change over time.

The policy framework outlined in Figure 4.7 identifies the policy objective, policy strategy and the key policy directions recommended. The five policy directions are:

- Meeting current pressures by helping with investment and industry participation, to reduce the risk of loss of jobs and core manufacturing capabilities.
- Lifting productivity growth and reducing business costs via economy-wide proposals in transport infrastructure, broadband, energy, regulation and taxation reform.
- Improving the benefits flowing to Australian manufacturing from our research investments including through a new platform for systemic collaboration with innovation hubs and stronger networks.
- Building a cohort of medium sized world competitive firms and improving SME competitiveness through a new SME Strategy that targets SME capability.
- Forging of a shared competitiveness culture through a new national partnership for workplaces, focused on the capabilities of managers and workers.

These five policy directions provide a clear statement of the non-government members of the Taskforce’s strategic intent and priorities. They are also presented as a package for driving the systemic change needed.

Figure 4.7
SMARTER MANUFACTURING FOR A SMARTER AUSTRALIA – POLICY FRAMEWORK



SECTION 4 THE POLICY FRAMEWORK – FOOTNOTES

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POLICY DIRECTIONS

SECTION SUMMARY

This section proposes five essential priority policy directions, with specific policy proposals made to support each. These directions are broad but not exhaustive – tough calls have been made to produce the package proposed. The corollary is that a lack of policy commitment on any of them will limit impact.

While the five point policy agenda looks to the future, the non-government members of the Taskforce reiterate the urgent priority it gives to addressing the businesses and workers at risk now.

The non-government members of the Taskforce propose the following policy directions:

- Meeting current pressures by helping with investment and industry participation, to reduce the risk of loss of jobs and core manufacturing capabilities.
- Lifting productivity growth and reducing business costs via economy-wide proposals in transport infrastructure, broadband, energy, regulation and taxation reform.
- Improving the benefits flowing to Australian manufacturing from our research investments including through a new platform for systemic collaboration with innovation hubs and networks as the focal point.
- Building a cohort of medium sized world competitive firms and improving SME competitiveness through a new SME Strategy that targets firm capability.
- Forging of a shared culture of productive performance through a new national partnership for workplaces, focused on the capabilities of managers and workers.

In each of the directions outlined, the non-government members of the Taskforce make it clear that the manufacturing sector commits to being a constructive partner in change.

This section outlines the priority policy directions proposed.

Each policy direction concludes with a discussion of what the new policy directions imply for roles and responsibilities. For lasting change, all of us, including governments, industry, employees, unions and researchers, must play our part.

Managing current pressures

The non-government members of the Taskforce recommend that a package of short-term measures be considered to help counter the cyclical factors confronting key manufacturing subsectors. These measures meet the need for tight targeting and recognise that the future for manufacturing is not going to look at all like the past.

One critical issue is the extent to which current pressures threaten not only jobs, but also capabilities that will be required to meet the aspiration of a broad-based national economy. An extract from independent advice from Insight Economics is in Box 5.1.

Box 5.1 INSIGHT ECONOMICS

“... it could be inefficient to lose some companies that have been excellent performers if it is likely that the terms of trade will decline in the future from their current highs and such companies would then be competitive again. While in principle the market is the best determinant of the allocation of productive resources between different activities, in Australia’s current circumstances the market is likely to operate on the basis of a shorter timeframe than is ideal. For example, the banks, particularly under present global wholesale financial market constraints, are unlikely to take a longer term view of the prospects for a particular company’s prospects on the basis of a projected future decline in the terms of trade. In this context, our interviews revealed that smaller and medium-sized manufacturing companies are finding it much more difficult to obtain debt finance these days than before the GFC.

This provides little confidence that ‘leaving it to the market’ is necessarily the best means of ensuring allocative efficiency in the circumstances where the terms of trade are currently high but can be expected to decline somewhat in the medium and longer term. To illustrate this statement, if the market were efficient in allocating labour and capital between various

activities, it would be reasonable to expect some symmetry in the outcomes it produces. If that were the case, when international competitiveness declines, manufacturing companies may go out of business, but then when competitiveness improves it should reasonably be expected that the market would allow such activities to re-appear.

In practice, of course, this is most unlikely to eventuate. If the current surge in the terms of trade resulted in Australia losing, say, the car industry, aluminium smelting or parts of the pharmaceuticals industry, it is very difficult to imagine such activities re-emerging sometime in the future when the terms of trade decline. While this may be what simple market models may tell us should happen, it would not reflect the way in which transnational corporations allocate their global investment dollars. Australian competencies in many manufacturing activities have been developed over a long period of time and involve substantial sunk costs. In a high cost economy, it would almost certainly not be efficient to attempt to re-invent such competencies when the terms of trade fell. Rather, new investment would go to those other countries that had continued to build their manufacturing competencies while the sector in Australia was in decline.”

ADDRESSING COST PRESSURES

Section Two discussed the reasons behind Australia becoming a relatively high cost place to live, work and do business. This high cost environment should not be interpreted, or accepted, as a given. On the contrary, we should be doing all that we reasonably can to contain and reduce costs – both direct costs through taxes, charges and input costs, and indirect costs through an excessive regulatory burden.

We should be doing all that we can to get costs down, including through the processes the Commonwealth has in place to deal with regulatory reform and business taxation. This report includes further recommendations on removing unnecessary regulation and red tape, and attacking the high cost environment they contribute to.

Equally, we must realise that the less we do in reducing costs, the harder we will have to work to increase our value added just to stay competitive. In a high cost environment, the focus shifts from purely cost to value for money (which involves both cost and value adding concerns).

As the non-government members of the Taskforce's business and union leaders have stated:

“Rather than suggesting pejoratively that one factor or another is more ‘to blame’ for Australia’s status as a high cost location the real challenge is to create an environment and culture that facilitates the change process required for Australian manufacturing to become more internationally competitive. As suggested by many leaders not just in Australia, but in most other nations as well, ‘this requires a business environment that supports continual innovation in products, processes and management’. It also requires an understanding of what is required to build better manufacturing businesses and what company leaders, their senior management team and their employees can do to adjust to challenging times.”

GOVERNMENT INVESTMENT

Recognising the pressures facing non-resource sectors, the non-government members of the Taskforce recommend that the Commonwealth bring forward and increase investments in infrastructure projects to stimulate demand. Given the engineering skills shortage, this approach will need to be targeted at particular sectors and regions. This will help ensure that Australian firms are able to access work in the short term as cyclical pressures subside. This policy should be coupled with appropriate local content and Australian Industry Participation provisions to support projects with a high need for Australian produced components and manufactures.

If deemed appropriate in the context of monetary and fiscal policy considerations, measures to stimulate residential and commercial construction should be considered given weakness in demand and soft prices. State budgets, as evidenced by New South Wales (NSW), are starting to reflect this. There is also a need for these short-term measures to focus on the peaks and troughs in defence procurement across a wide range of activities. The Industry Minister should consult with his state counter parts and call for a specific focus on government car fleet orders. These and other related measures should be the focus of early government action.

IMPROVED AUSTRALIAN INDUSTRY PARTICIPATION PLANS (AIPP) AND ANTI-DUMPING MEASURES

It is important to note that the issue of a modest and targeted stimulus as suggested above should be also accompanied by initiatives aimed at private sector activity. The \$450 billion pipeline of resource sector and infrastructure related investment provides an excellent opportunity to address some of the cyclical demand side issues.

Australia should use its very large economic projects to leverage outcomes, both because this is the fastest route to lifting standards in technology, management and design, and because this helps to capture national value from these projects.

With appropriate linkages to other sectors this can help firms adapt to current cyclical pressures. For the benefits from ‘full, fair and reasonable access’ to materialise, there will need to be greater rigour and transparency applied including the provision of a breakdown of contestable items preferably with AIPP plans developed at the environment impact stage of projects in the future.

Standards should not be specified in a way that unreasonably utilises foreign competitor specifications thus limiting the access of Australian suppliers. The scale and breadth of our opportunities in Australia’s resources sector are simply too great to let pass. To steadily bridge the gap between resource sector productivity requirements and the capabilities of the manufacturing sector, practical pathways, based on existing opportunities, need to be developed.

This will require collaborations that empower the resources industry as a lead customer, while recognising the ultimate need to build stronger supply chain linkages with Australian manufacturing. This could involve modest incentives from the Commonwealth to underwrite such collaborations enabling developmental risks to be shared, relationships to be built and the basis for stronger future supply chains strengthened.

What is needed here is the commitment of all parties.

While this will be an ongoing challenge, action needs to start now. The identification of initial projects that can trial this approach should be happening now. So the non-government members of the Taskforce recommend expanding the Buy Australian at Home and Abroad initiatives by selecting large Australian infrastructure projects and specific export opportunities, then working in concert with the Supplier Advocate program, the Industry Capability Network and Austrade to compete for those projects and with Enterprise Connect to build the capability of potential manufacturing suppliers. This is needed in both the short and longer term.

Dumping goods into Australian markets is another issue that can have a significant impact on local manufacturing viability and the non-government members of the Taskforce believe existing policies should be revisited and in particular, the following issues looked at further:

- Continued operation of the International Trade Remedies Forum.
- Appropriate resourcing for ongoing operations and Strike forces within Customs.
- Supporting the measures noted above with a more systematic and comprehensive approach to negotiations aimed at removing non-tariff barriers in the home market of our trading partners.

Such measures will help to address both the short and long term challenges manufacturing faces.⁷⁷

MANAGING CHANGE

Past reforms demonstrate the need to maintain stakeholder and community support in the process of necessary change. This requires that changes be managed in a way that acknowledges and respects both their economic and social impacts.

When people are not prepared for change – and sometimes even when they are – the costs can fall disproportionately on particular industries, communities and groups of workers. For example, many of the workers who have lost their jobs in the textile, clothing and footwear industry have been low paid, migrant women with few economic resources and/or obvious alternative employment options.

Some trade-exposed subsectors sensitive to high distance and rising energy costs – such as TCF, automotive, aluminium and steel – face projections of further decline.

While some of these have well defined structural adjustment packages in place, primarily in recognition of declining tariffs over coming years, others have not. Exposure to low cost competition, and global oversupply in the automotive industry, leave these industries highly vulnerable.

Their challenge will be to identify new roles within global value chains and, where that is not possible, proactively manage significant transitions for firms and workers.

Principles and policies for structural adjustment

The non-government members of the Taskforce believe that having a shared understanding of the principles guiding assistance for structural adjustment facing workers, firms and communities is important to maintaining a shared acceptance of the need for change.

Assistance for structural adjustment by the workforce, firms and regions should:

- Alleviate the immediate impact on individuals affected and provide a strong social safety net to help.
- Focus on skills that will help people to take advantage of new opportunities, assist them to maintain their labour market connections and work incentives. This needs to recognise the scale of difficulties certain groups of workers face when they are retrenched after long periods in the one industry.
- Encourage ownership and commitment from the beneficiaries of the assistance.
- Build on and complement existing approaches and be cost effective.
- Facilitate and not impede the change necessary for future growth.
- Be transitional in nature with clear outcomes and exit strategies.
- Take account of the capacity of the affected region to absorb firm closures and to reallocate resources to other growing firms and industries in the same, or nearby, regions.
- Encourage cooperation across all levels of government in recognition of the important role of the different tiers of government in delivering assistance.

Specific policy options to manage transitions include:⁷⁸

- The development of a ‘skills training allowance’ scheme to support displaced workers during a period of structured retraining before losing their jobs.
- The development of specific skills and job retraining programs in conjunction with key unions for a particular industry facing structural adjustment.
- Skills mapping of workers’ skills against labour market opportunities, including opportunities elsewhere in the economy.
- Relocation support to take up alternative employment if that is desired.
- Early retirement, with government contributions to superannuation, for those within three years of retirement age.
- The option of developing a business plan, which must pass reasonable finance hurdles, in order to access a loan guarantee (which could not be used for salaries) valued at up to the equivalent of three years of pension costs.

A lasting legacy for mining communities

In addition, the Commonwealth should engage all levels of government through COAG in a strategy to increase investment in the built environment, social and community infrastructure and liveability in mining communities. This would be to ensure that the mining boom leaves a lasting legacy for these towns, such as the diversified economic and social legacy left for gold rush communities such as Bendigo, Ballarat, Gympie and Bathurst.

This program should also ensure full, fair and reasonable access to local suppliers, including of manufactured building products, labour and services, to better spread the benefits of the boom throughout manufacturing and the broader economy.

Managing business transition

The experience of Enterprise Connect suggests there is a large cohort of baby-boomer owners of manufacturing SMEs who will be looking to exit their businesses over the next few years. This can be an opportunity for renewal and new thinking.

Family businesses may need support with structured succession planning, possibly including management or employee buy outs, that ensures the next generation of management has a competitive skill-set.

In the next 12 months the agencies that advise on such matters (including smaller regional accountancy firms, business advisors etc.) should be the focus of a coordinated state and Commonwealth information campaign on the government small business and industry advisory services and programs available to assist firms with these transitions.

Economy-wide measures

To help reboot economy-wide productivity growth and reduce costs, modifications to existing initiatives in transport infrastructure, broadband, energy, regulatory and macroeconomic policies are proposed to enhance their sectoral and economy-wide impact.

Economy-wide measures aim to reduce input costs, taxes and charges, and remove unnecessary regulation. Microeconomic reform to reduce costs remains critical, particularly given the emergence of Australia’s ‘high cost’ environment.

REGULATORY POLICIES

In a high cost business environment, Australian manufacturing cannot afford to be burdened by regulation that is poorly designed, duplicative, and in some cases unnecessary. Too often, regulation is developed without real consultation and without proper cost-benefit analysis, and the same information is demanded in different formats.

- Development of regulation should have early and true consultation, assessing the regulatory impact on ancillary industries not just those companies or firms directly impacted.

- Assessing the regulatory impact on ancillary industries. Regulatory changes to the manufacturing sector should consider the impact on ancillary industries reliant on local manufacturers. This is not currently occurring.
- The non-government members of the Taskforce have raised various industry specific issues:
 - medical devices and pharmaceuticals;
 - reducing costs of introducing new products by better aligning approval and conformity certification processes in Australia with those required in major export markets;
 - operation of state level environmental laws and their interaction with Commonwealth legislation.

At the same time, it also needs to be recognised that in environments that have changed rapidly, regulation can also be an effective tool to drive innovation, change and adaptation. This has frequently been the case in the construction and automotive industries, where regulation impacts on innovation.

BUSINESS TAX REFORM

One of the critical challenges facing manufacturing firms – in the short-term and the long-term – is the need to maintain investment and re-investment. Reducing tax burdens to encourage investment and reduce the costs of doing business is a key way that governments can assist business to meet these challenges. In the absence of broader reductions in the company tax rate, more targeted arrangements such as accelerated depreciation to reduce effective tax rates on manufacturing businesses could be put in place. An alternative which the non-government members of the Taskforce think warrants consideration by government is a selective investment incentive focused on supporting niche opportunities that would not proceed without support and for which there is strong global demand. The justification for this approach, how it might be designed and its use in selective cases is dealt with in the concluding chapter of the Insight Economics consultancy report which is reproduced in Appendix Three of this report.

It will also be important to monitor the initial operation of the new R&D tax incentive arrangements to remedy any unintended consequences, as there are risks that the new dominant purpose test and feedstock provisions will undermine R&D spending and that the scheme may be difficult to comply with.

Finally, while more in the realm of grants than business taxation, there is concern about the adequacy of funding over the next year in particular for Commercialisation Australia (CA). Almost 40 per cent of CA's funds supporting entrepreneurs, inventors and start-ups go to manufacturing-related activities. Additional funding should be provided to prevent applications that pass all the merit hurdles from being knocked back because of a shortfall of funds during 2012-2013.⁷⁹

LEVERAGING THE BROADBAND OPPORTUNITY

Public policy needs to do more to assist SME manufacturers and others become more Information and Communications Technology (ICT) proficient and 'broadband ready'. The Commonwealth Government should ensure manufacturing-specific initiatives are funded through its Digital Enterprise program, and that Enterprise Connect is equipped to provide knowledge and advice on the implications of broadband for the business models of its clients.

The rollout of high speed broadband will require significant up-skilling in manufacturing, but also presents a visible opportunity to emphasise the wider impact of new technologies (including additive manufacturing, synthetic biology and new materials) on manufacturing.

Expanded access to high speed broadband provides an opportunity to make businesses more aware of their opportunities for collaboration. As will be discussed, this needs to be seen as a systemic opportunity to build collaboration and 'virtual scale'.

A COHERENT APPROACH TO TRANSPORT INFRASTRUCTURE INVESTMENT AND PLANNING

At the May 25 meeting of the Prime Minister's Taskforce the union and business leaders made the following point about the significance of transport infrastructure:

“To help lift economy wide productivity growth over the next decade, there is a need to significantly upgrade Australia’s road/rail/sea/air transport infrastructure in both urban and regional Australia. This will require arrangements to facilitate close partnerships between the public and private sectors including superannuation funds. Government alone cannot finance all of Australia’s infrastructure needs; and the reality of debt and deficit in Europe and America and the requirements of emerging Asia is that there will be a global competition for private sector infrastructure investment ... Well targeted infrastructure investment can provide a range of economic, social and environmental benefits ...

A range of long-term trends will drive the future productivity of transport infrastructure, as will the effectiveness of government and private sector responses to them. For example, by 2030 Australia’s freight task will have doubled (with most of the additional domestic freight task carried by road and rail) and the volume of container movements through ports will be approximately 2.5 times what it was in 2007. International passenger movements through our capital city airports will almost triple by 2030, while public transport usage will increase by one third. The avoidable cost of congestion in our cities will reach \$20 billion a year by 2020. An extra 4.5 million people will join the three quarters of Australians who live in our 18 major cities with populations of more than 100,000.

We note that COAG and the Commonwealth are engaged in a significant transport reform process and that the Commonwealth’s Nation Building program is providing substantial investment for infrastructure projects. Budget pressures will accentuate the need for an appropriate contribution by the private sector to infrastructure. Greater private sector investment will need to be encouraged, not just by demonstrating economic returns, but also by further commitment by governments to streamlining the regulatory environment where possible. Analysing current settings, and approaches to, for example, the infrastructure pipeline, risk sharing and Public Private Partnership processes, will also be important in encouraging private sector investment.”

The crucial impact of transport infrastructure on manufacturing productivity is acknowledged, and current deficiencies need to be addressed:⁸⁰

- Governments should encourage investment in the nation’s transport infrastructure and utilise the appropriate economic instruments for doing so. Public private partnerships in infrastructure should be pursued where circumstances warrant.
- Inconsistent legislation and regulations covering road and rail infrastructure at local, state and national levels needs to be addressed and made consistent.
- A clear, concise statement on the Commonwealth’s strategic directions for multi modal transport infrastructure and the future development of cities and regions would enable manufacturing firms to plan for the future with greater certainty.

STANDARDS AND CONFORMITY

Australian manufacturers acknowledge and support the role of standards in facilitating commerce and underwriting consumer and business confidence. Australia has a strong standards infrastructure but one that is at risk of being undermined by non-conformity and, in some cases, misrepresentations about conformity.

Australian manufacturers are increasingly finding that they are competing against products that do not conform to regulatory requirements and do not meet standards to which domestic businesses adhere. This places complying and conforming businesses at a cost and competitive disadvantage.

The non-government members of the Taskforce recommend that that the Commonwealth Government develop an approach to conformity marking along the lines of Europe’s CE Marking; that it evaluate, in consultation with industry, the effectiveness of existing regulators with responsibilities for product assessment with a view to improving the effectiveness of conformity assessment; and that it enters a dialogue with the ACCC and, through the State and Territory Governments, Offices of Fair Trading, to increase the priority given to addressing misleading claims of conformity with regulation and voluntary standards.

ENERGY POLICIES

Energy prices impact directly on the competitiveness of many Australian manufacturers, and can be attenuated.

- Link Australian greenhouse gas reduction scheme to overseas schemes.
- Assist businesses to identify and implement energy efficiency measures.

- Rationalise the Commonwealth/State mix of greenhouse schemes that have overlapping aims and coverage.
- Energy market reform to ensure the market and its regulation operate as efficiently as possible, delivering lower prices to energy users while encouraging investment in low-cost energy.

Enhancing our competitiveness in a carbon-constrained economy will require strong support and clear pathways for manufacturing firms to become more energy efficient and sustainable.

The non-government members of the Taskforce support funding for the \$1 billion Clean Energy Technology Investment Program, streamlining compliance requirements and ensuring that SMEs have the support and information required for accessing the program.

The non-government members of the Taskforce stress the importance for energy-intensive businesses that the impacts of the carbon price be ameliorated given the current competitive environment. To this end, it is critical that the Energy Intensive Trade Exposed Industries program be monitored for impact and refined as needed.

MACROECONOMIC STABILITY AND READINESS FOR THE FUTURE

Sound macroeconomic fundamentals are an essential precondition for manufacturers and firms in other industries to be able to make sound investment decisions. Given that Australia cannot control the fluctuations of the world economy we need to develop appropriate strategies to deal with turbulent global conditions. Accordingly:

- The Commonwealth should commission an independent investigation of the potential impact of greater use of Sovereign Wealth Funds for Australia. Lessons from the decision taken by the Western Australia (WA) Government to establish such a fund should also be considered.
- The Commonwealth and industry need to be ‘downturn ready’, so a dialogue is needed on what this actually requires for the years ahead – potentially as part of the proposed Australian Economic Dialogue proposed later in this report.

Smarter networks

Collaboration and networks are critical to manufacturing innovation and competitiveness. Collaboration represents a fundamental challenge for Australia due to our constraints of scale and geography.

In Australia, collaboration is more serendipitous than systemic. In a world where personal relationships and social norms of collaboration are among the most critical characteristics of successful innovation industries and regions, we are lacking.⁸¹ There is considerable scope to generate greater value from our public investments in science and research by improving incentives for collaboration and creating more collaborative mindsets among researchers and businesses.

A new Smarter Australia Network, supported by an online platform, could leverage high speed broadband to expand systemic opportunities for collaboration among and between businesses, researchers and governments.

To provide a practical focus for such collaborations, and to build critical mass around our comparative advantages, the non-government members of the Taskforce propose new Innovation Hubs to develop solutions for global value chains and forge new models of working together.

The non-government members of the Taskforce propose a national hub pathfinder project on food, an area in which Australia enjoys natural advantages in the Asian Century.

For manufacturing more specifically, a strategy is proposed to ensure that manufacturing capabilities and knowledge diffusion are both developed.

The non-government members of the Taskforce propose a review to develop a Design Innovation Strategy, so that Australia can translate its engineering strengths into a new national design edge and bring design thinking into business strategy.

INDUSTRY AND RESEARCH WORKING TOGETHER TO BOOST PRODUCTIVITY

Australia needs to develop better connections between manufacturing firms and the research-education sector. A primary concern of the non-government members of the Taskforce is the tenuous nature of linkages between industry and research in Australia. Examples of good linkages between research and industry are encouraging and are exemplars of how businesses can be grown with research input. However, these are the exception to

the norm. For over three decades, Australia has performed below average in international measures of linkages between industry and research. This is in contrast to competitor nations where manufacturing businesses, large and small, not only have regular interaction with the research sector but actively drive the research agenda. This occurs across manufacturing sectors – high, medium and low technology.

For Australian manufacturers to compete internationally, linkages with the research and education sector are a crucial piece in the puzzle.

Corex Plastics in Dandenong, Victoria, sought to take advantage of a government initiative to connect industry and research bodies – Researchers in Business – in order to pursue process and industry capability improvement. The program provided for up to 50 per cent the cost of employment for a researcher to be employed by a local manufacturer to undertake a defined project that met objectives for investment, employment and process improvement.

An emphasis was placed on applying pure research from what would typically be an unrelated field to engage with the traditional product development and innovate manufacturing processes with new methods and approach. Corex identified a project involving sheet surface finish of its products and engaged with a university to seek a polymer resin engineer researcher in the field of surface nanotechnology to support the initiative.

The project was high risk and involved significant capital investment by Corex to support the trials utilising unfamiliar skills and leading to a completely different approach and technique from that used in the past. The commercial expectation was that Corex, as the initiator and undertaking the risk, would be the employer of the researcher and would benefit from the government grant program. Corex found a suitable post graduate researcher, however when they approached the university to

partner with them, the university sought to be the employer of the researcher themselves and insisted that the salary levels associated with the university for pure research would be applied. The university proposed they would invoice Corex for the employee effectively on 'secondment'. This gave rise to possible issues around IP ownership, retention and the ability for it to be exclusive to Corex.

On a financial side, a research salary was almost double the industry rate for a similar level of responsibility and would lead to Corex not benefiting financially from the support offered by the government grant and nor would the university either. Without the agreement with the university faculty Corex would be unable to comply with the grant conditions.

Disenchanted by this, the company sought out another recent graduate in the field of nanotechnology and similar to the university offered. Corex then employed her at a commercial rate and went on without the university involvement. Unfortunately this meant the grant was unavailable, but the net contribution by Corex was the same, and with retention of the IP arising from the research remaining with Corex.

Despite the initial setback, the result has been very successful for the company, and rewarded with a significant increase in turnover and development of highly demanded niche product.

Consultations with stakeholders have shown that this is a complex and multi-layered problem. Chief among these is that of differing cultures and drivers. Research organisations fulfil many roles, of which engagement with industry is one and of varying priority. Some research organisations place primacy on basic research which may, in the short to medium term, appear to have limited commercial application.

For Australia to improve, reciprocal benefits must be derived and recognised by both the research and education sector and industry. The development of strong relationships based on understanding mutual needs, and capabilities, can lead to not only more internationally competitive businesses, but also to considerable high standard, leading-edge, and nationally-competitive grant funded research with high academic merit. These need to become the rule rather than the exception.

Generally, the primary source of recognition of an academic's research achievement is by peer-reviewed publication of research outcomes, preferably in a highly ranked journal. Publication performance has traditionally been the key consideration in an academic researcher gaining promotion, and so it is an important driver of behaviour (ie. the 'publish or perish' mantra).

On the other hand, the conduct of applied research, such as to directly address an industry problem, will generally not involve such leading-edge research, and so may be viewed by researchers as being less valuable in career progression terms. Even where collaborative, industry-focused research is involved, perhaps to solve a longer term industry problem, commercial considerations may inhibit rights to publish, and so diminish the academic merit, making it less attractive to researchers.

A number of measures are in place that need to be significantly improved upon to build Australia's performance in this area. The non-government members of the Taskforce also believe that other measures could be implemented to address the structural and cultural barriers existing between industry and researchers. This includes involving students in driving creative solutions in a business context.

EXCELLENCE IN RESEARCH AUSTRALIA

Excellence in Research Australia (ERA) identifies and examines the quality of research across the full spectrum of research activity, identifies areas of excellence, emerging areas and opportunities for further development and allows international comparisons to be made.

While this is a laudable and important initiative, this work needs to be taken to the next level. Further work needs to be undertaken to measure the impact and application of research for industrial transformation, not to diminish the drive for excellence but to complement it, and to understand the extent to which research institutions are able to respond to demand-led application and development of research.

The non-government members of the Taskforce are of the view that a more significant weighting should be placed on the measurement of the impact and application of research. Without this the ERA will not facilitate more meaningful relationships with end users, will not develop young researchers and engineers with a greater capacity to work within industry, and will not deliver on the government investment in research and development.

INDUSTRIAL TRANSFORMATION RESEARCH PROGRAM

The Industrial Transformation Research Program aims to support quality R&D partnerships that will help transform Australian industries.

The Program will:

- Focus on research areas that are vital for Australia's future economic prosperity, such as engineering, materials science and nanotechnology, communications, robotics, chemical engineering and biotechnology.
- Support Industrial PhD students and researchers to gain 'hands-on', practical skills and experience in these important areas.
- Foster important partnerships between business and universities.

To achieve this, the Program will fund Industrial Transformation Research Hubs and Industrial Transformation Training Centres. Without these, the program will have little impact on manufacturing competitiveness and productivity of the sector and the broader economy.

While the non-government members of the Taskforce strongly support the government's recent announcement of the Industrial Transformation Research Program, it believes that the Program needs to be implemented with maximum impact. To achieve this, two outcomes need to be achieved. Firstly, the Program needs to be targeted to create critical mass to create strong research and innovation precincts. There is a risk that program funding will be spread too thinly. Program criteria should be developed to ensure that research hubs and training centres are sustainable and will grow, including as part of global research networks. Secondly, the Program needs to be implemented so that it has a strong business creativity and problem-solving focus, with outcomes for business accurately measured to ensure that the Program is achieving its goals.

COOPERATIVE RESEARCH CENTRES

A CRC is an organisation formed through collaborative partnerships between publicly funded researchers and end users. CRCs must comprise at least one Australian end-user (either from the private, public or community sector) and one Australian higher education institution (or research institute affiliated with a university).

The non-government members of the Taskforce note that there are some very successful manufacturing related CRCs but is of the view that the timing of co-funding requirements can restrict industry collaboration. Although it is understood that the CRC Program has been recently reviewed, the non-government members of the Taskforce believe that the government should consider whether further adjustments to governance structures and processes can be made to establish more agile, more globally oriented collaborative partnerships through the CRC Program.

RESEARCHERS IN BUSINESS – BUSINESS PEOPLE IN RESEARCH?

This Report has identified the Researchers in Business Initiative as an essential and practical method of 'bridging the gap' by directly supporting the placement of researchers within businesses. This approach has proven to be particularly beneficial to SMEs and to the researchers.

In keeping with the notion of building research and industry linkages and the need for reciprocity, further measures should be introduced to bring industry into research institutions. Industry experience can be crucial to the learning experiences of future generations of students, whether they remain in research or move into the business sector.

This could be achieved through a range of mechanisms. Other countries have introduced models to foster the creation of adjunct roles for business people within research institutions, and for students to work on short projects with industry. There would be significant value in the government investigating those models and supporting local models that best fit the Australian environment.

The non-government members of the Taskforce also note the role of multidisciplinary 'innovation and design (living) labs' in universities which provide a framework for creative student engagement with industry challenges, as well as promoting student ventures and entrepreneurship. This would be a fruitful direction for the Students in Business program, which is currently confined to identification of internship opportunities.

THE WAY AHEAD

The non-government members of the Taskforce propose two first steps to addressing these issues:

1. *Formal ongoing dialogue*

A formal and ongoing dialogue should be established between industry and the research and education sector. The purpose of this dialogue would be to:

- Promote greater understanding of each other's cultures and structures, including areas of common interest.
- Better understand how mutual benefit can be derived from closer collaboration.
- Identify best practice examples internationally of research/industry collaboration.
- Improve the performance of university technology transfer offices in commercialising ideas.
- Support the establishment of innovation labs at the interface of industry and universities.

2. *Directly incentivising industry-research links*

The research sector is the source of new and applied knowledge and innovation for Australian industry (large and small) and is a key reason for MNEs to invest/re-invest in Australia. In a high cost economy, our SMEs will be competing on the basis of differentiated solutions rather than price, and the research sector can assist in helping SMEs develop these.

In order to address deficiencies in current industry-research links, the non-government members of the Taskforce recommend that the lack of incentive in the research sector for collaborating with the manufacturing industry be addressed by introducing a research impact measure tied to funding, and that consideration be given to diverting a modest proportion of current research funding streams into third-stream funding aimed explicitly at knowledge exchange between users and the research sector, as has successfully occurred in the United Kingdom.

SMARTER AUSTRALIA NETWORK – A NEW PLATFORM FOR GROWTH

As discussed, the social and information networks that underpin collaboration and innovation in Australia are weak. Where collaboration occurs it is usually based on existing relationships, existing networks and existing markets. Given Australia's scale and geography constraints, there is a need to consider more systemic options to boost collaboration.

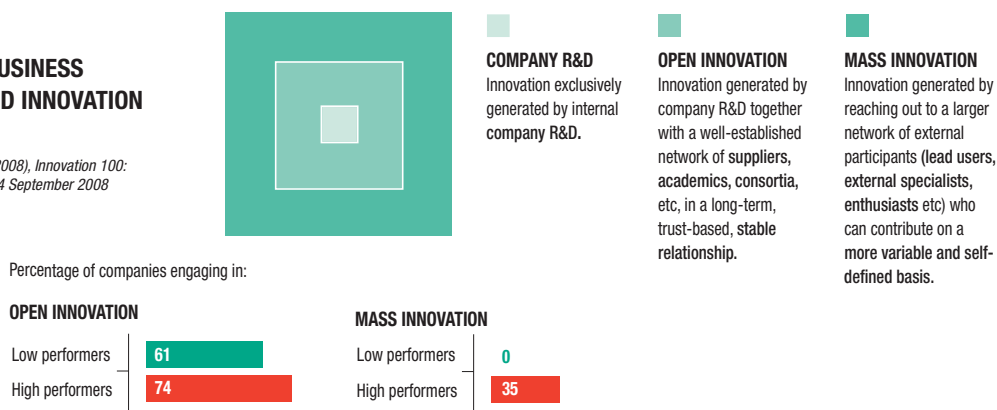
The Smarter Australia Network would connect precincts and other centres nationally through a collaborative and open online network. This would leverage the benefits of high speed broadband and step boldly ahead of the global trend towards collaborative and open innovation.

The Smarter Australia Network would provide Australian businesses the opportunity to connect locally, nationally and potentially globally, with a specific focus on industry value chains.

The Network would be virtual and viral, making it easy for participants to opt-in and communities to self-organise as they see fit. It would show struggling businesses 'what good looks like', help to establish peer groups in areas such as high growth firms or high performing workplaces and enable 'SME clustering' options.

Figure 5.1
NEW SOURCES OF BUSINESS
COLLABORATION AND INNOVATION

Source: World Economic Forum (2008), *Innovation 100: Post-meeting report*, Palo Alto, 3-4 September 2008



While virtual collaboration is no substitute for personal relationships, it provides an ideal environment for firms to engage wider user networks and communities, an approach currently confined to high performing firms as illustrated in Figure 5.1.

The Smarter Australia Network would encompass all levels of collaboration outlined in Figure 5.1, while within this innovation hubs would provide a focal point on those industries and capabilities that can generate the most value for the nation.

The network would be a platform that empowers industry networks (such as Industry Innovation Councils and the Industry Capability Network), applied research networks (such as the Commonwealth Scientific and Industrial Research Organisation (CSIRO)), the Defence Science and Technology Organisation (DSTO), Rural Research and Development Corporations (RRDCs), Cooperative Research Centres (CRCs) and regional networks (such as the Regional Development Australia network) – encouraging bottom-up as well as systemic collaboration.

The network would be designed from the outset to focus on innovation, and particularly business innovation. Its connections would not stop at borders – the Network would be a mechanism to showcase Australia’s strategic directions and capabilities to the world, and connect us to the 98 per cent of knowledge generated elsewhere through links with international research, business and government communities.

INNOVATION HUBS – BUILDING CRITICAL MASS

Hubs would be national resources of global significance, built on regional comparative advantages and competitive strengths. Their scale would involve agencies and stakeholders working to attract global investment, research and talent, and connect with global value chains – offering participants a springboard into Asian and other markets.⁸²

Policy advocacy is arguably the critical factor in attracting foreign direct investment.⁸³

Where global competition demands it, governments need to send the clear signal to multinationals and to other governments that Australia will compete with a coordinated whole-of-governments approach – that we are serious in our intent to build critical mass around our comparative and competitive advantages.

While investment support in such areas already exists, at both Commonwealth and state levels, it is ad-hoc and disconnected from strategic national priorities. To remedy this, the Commonwealth should consider a Strategic Investment Facility with an ability to co-invest in economically significant activities in line with national priorities. In particular, this Facility should leverage the profile of innovation hubs to attract Tier 1 manufacturing firms to anchor value adding bases in Australia.

Beneficiaries of such support would be required to be active participants in the supply chain enhancement strategies that all hubs would be required to publish, thus supporting new paths to market for Australian SMEs through larger firms.⁸⁴

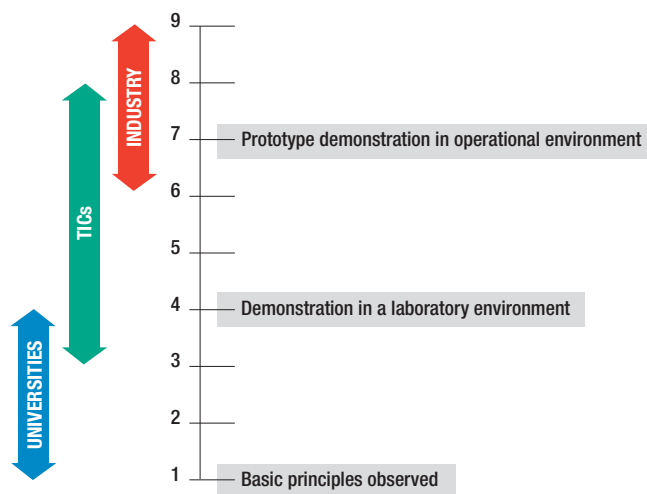
Hubs would generally address major economic and societal needs – with a whole of value chain approach that crosses manufacturing-services-systems divides.⁸⁵ They would build on and learn from the experiences of other nations.

The positioning of the UK Catapult Centres discussed in Section Three is between market pull and technology push as shown in Figure 5.2 below.

Figure 5.2

**UK TECHNOLOGY AND INNOVATION CENTRES
– THE CONCEPT**

Technology readiness levels



With Australia having a smaller scientific base, a more applied model of innovation and a clear picture of major opportunities are required. It is therefore proposed that Smarter Australia Hubs would be relatively more focused than UK Catapult Centres on market pull.

The critique of Singapore’s ‘high-tech’ innovation path is also relevant to Australia. With a range of existing strengths that offer comparative and competitive advantages, Smarter Australia Hubs would be built on these existing strengths. However, hubs would also consider potential alongside revealed advantages.⁸⁶ This dual focus recognises that comparative and competitive advantages are dynamic, and would be a counter to the short-term bias of Australian management.

On these criteria, candidates for precincts would include the related opportunities in food, forestry, resources, engineering, health and the environment, as well as national defence. Capability-based hubs (and networks to disseminate knowledge) could also be considered for manufacturing technologies and design.

The focus and location of Smarter Australia Hubs should be determined based on a total assessment of Australia’s capabilities and industry strengths, and their potential to solve our existing problems and seize our emerging opportunities. Hubs would host modern technology and equipment, but also critically the people, organisations and relationships needed for problem solving. They would connect leading technology with leading practice in management, design and marketing.

Hubs would not operate under the existing rules, cultures and incentives of existing research facilities. Rather they would enjoy governance autonomy, be led by business, and have flexibility with operating models to discover what rules work best for collaboration and innovation.

This carries significant advantages for the skills agenda, as it creates an opportunity for existing and prospective researchers to pursue an alternative career path that involves solving practical problems, making a difference and being rewarded for their achievements on a more flexible basis.

Hubs would also provide a space to consider options to better integrate the work of student teams, across scientific, managerial and creative disciplines, into the task of practical problem solving for industry. Overseas evidence suggests that these models can be a win-win, as students discover a passion for practical innovation, while firms are introduced to new ideas and new talent.⁸⁷

The national footprint of innovation hubs would reflect not only existing strengths but also the aspiration of a broad-based economy, encompassing all major cities.

This could also extend to smaller hubs for narrower regional specialisations.

Hubs based on regional specialisation are not only how regions successfully compete, trade, grow and evolve; they are also how Australia can build a broad-based national economy that supports many successful industries and regions.

FOOD – THE NATIONAL PATHFINDER PROJECT

A National Food Innovation Hub and Network would be developed in a manner that is consistent with the larger hubs and networks vision outlined. The case for food to be the initial focus is outlined in Box 5.2 of this report.

Box 5.2 FOOD – THE NATIONAL PATHFINDER PRECINCT

Australia has an outstanding opportunity to leverage its comparative advantage in agriculture into growing Asian markets. Food is one of few areas of manufacturing where high distance costs are outweighed by other factors, in this case Australia's natural resource advantage.

The Australian food industry is made up of both MNEs and a significant 'tail' of SMEs. Despite the current pressures facing smaller companies, these are critical ingredients for a successful innovation precinct.

The global food industry is the world's largest, including in most developed economies. This is despite the fact that only a small proportion of the workforce is engaged in the physical growing and processing of food.⁸⁸

There is a global trend within multinational, multi-market food manufacturing corporations towards consolidation. If Australia can strengthen its position as an integrated supplier into Asian markets, it would be well placed to secure major investment and innovation opportunities in the region.

Elsewhere, such as in Singapore and China, investments are being anchored by significant government support.

Australia's strategy needs to focus on leveraging existing comparative advantage, in areas such as beef, dairy, sugar and grains, as well as developing areas that have high export potential in Asian markets. This strategy would involve developing a deep understanding of Asian consumers and their tastes.

The non-government members of the Taskforce recommend the Commonwealth support the development of a National Food Innovation Hub that can drive innovation among both MNEs and SMEs, supported by a National Food Innovation Network that supports distributed services and engagement.

This would be the pathfinder project for the proposed Smarter Australia Hubs.

The non-government members of the Taskforce recommend that the Commonwealth provide capital support for a green-fields facility that would:

- Utilise Asian consumer insights to identify and act upon new markets and food formats.
- Provide consumer insight laboratories to be used by Australian food companies for product development and marketing purposes.
- Connect with existing laboratories and facilities available in CSIRO and universities, and provide access to technology and equipment not readily accessible to SMEs or multi-national branches.
- Provide a focal point for government, industry and research collaboration, while also supporting a National Food Innovation Network.
- Link into international centres of excellence in this domain as well as international niche players in key positions in the international ecosystem.

To ensure competitiveness is not undermined, the non-government members of the Taskforce recommend that the Commonwealth ensure that competition settings permit the development of scale and scope needed for success in larger Asian markets.

On the same basis, the non-government members of the Taskforce recommend that the Commonwealth, in consultation with the Food Industry Innovation Council, assess short and medium-term measures for Australia's highly reputable regulatory standards around product labelling, marketing and ingredients. Any action from such review(s) should not diminish existing standards.

To illustrate what is proposed, consider the case of the global food business Kraft. When Kraft came to China, it brought with it the recipes that helped bring it success in the west. But in China, it had to adapt to unfamiliar tastes. Everyone knows what an Oreo cookie is supposed to be like. It's round, black and white, and intensely sweet – it has been for 100 years. But sometimes, in order to succeed in the world, even the most iconic product has to adapt.

At first, though, Kraft Foods thought that the Chinese would love the Oreo (with Australian wheat, Australian dairy). The company launched the product there in 1996 as a clone of its global version. Oreo did OK, but it wasn't a hit. It was almost pulled out of China. But before the cookie was declared a failure, Kraft thought that maybe a little Asian Consumer Insight was in order. Kraft developed an Insights Kitchen and a decade after Oreo was introduced, Kraft finally asked the right question of Chinese consumers.

The answer was surprising. Chinese consumers said it was a little bit too sweet and the flavour didn't deliver an emotional attachment with Chinese families. Why couldn't it deliver the same chocolate cookie crunch but have a familiar flavour such as green tea or orange filling (an East/West Fusion).

New products were developed which saw sales of Oreos double in China (2009), then double again (2010), and again (2011). It's now the best-selling cookie in China. With the help of those sales, Oreo revenue topped \$1 billion, with China becoming the second largest Oreo market globally.

A key objective of the National Food Innovation Hub and Network is to replicate this success and help Australia's food and food processing industry realise the full benefits of the Asian century.

MANUFACTURING CAPABILITIES

Earlier in this report we emphasised that there is a strong case for focusing on applied knowledge. More than ever in today's high-cost environment, manufacturers need to be able to value add. This requires business and government to focus on innovation.

There is also a need to recognise that it is business, based on market needs, that drives most innovation. This is despite the fact that the vast bulk of our innovation policies reflect an out dated supply-side way of thinking.

Finally, this report emphasises that there is a need for new skill sets to absorb knowledge, but also new mindsets that support constructive relationships within workplaces, research organisations and government agencies – and across all three. This is about relationships, not rules.

An important mechanism to help realise this focus on applied knowledge and building the capabilities of manufacturing firms is the proposed establishment of a Manufacturing Technology Innovation Centre (MTIC).

The non-government members of the Taskforce welcome the Minister for Industry and Innovation's invitation to be part of the due diligence for the Manufacturing Technology Innovation Centre. We propose a new committee be established that would be chaired by a senior business leader with a Deputy Chair being an eminent person from the private sector able to help undertake a two stage due diligence process of the funding and activities of those entities (CSIRO, universities, CRCs, Australian Research Council (ARC) etc.) with relevant connections to applied knowledge application and dissemination in Australia.

This review committee would, among other things, test the non-government members of the Taskforce's view that there are deficiencies in the manufacturing innovation system in Australia that need to be addressed. The review process would report on:

- Who does what and where are the key entities located?
- Who are their clients, both at Commonwealth, State and Territory level and within the private sector, and what are their engagement strategies with their clients and how successful have these been?
- What is the current balance of support for science based R&D versus production technology adoption and adaption, and non-technological knowledge adoption and adaption (eg. design, business model change)?
- What is the most effective contribution the Manufacturing Technology Innovation Centre or Network can make and what role should be played by agencies such as QMI and Enterprise Connect?
- Whether current funding of manufacturing innovation is sufficiently strategic to ensure the government and the sector are generating the benefits they should?
- How and whether The Manufacturing Technology Innovation Centre (MTIC) or Network could be a Smarter Australia Precinct (though potentially involving multiple sites given the tendency for manufacturing subsectors to cluster in different locations), bringing together globally and nationally relevant manufacturing technology and expertise, with an innovation agenda defined by the needs of industry?
- How and whether the ARC's Industrial Transformation Research Hubs would form part of a Manufacturing and Technology Innovation Network, operating as applied knowledge centres that connect with the MTIC, Enterprise Connect, QMI and other agencies?

The non-government members of the Taskforce note that other industry sectors have functional, strategic innovation systems (mining, agriculture) underpinned by effective interaction between demand and supply forces. We note that other countries (eg. Germany) have clearly defined roles and responsibilities within their manufacturing innovation systems and that these systems appear to work well.

Manufacturing deserves to have the same both for its own competitive future, and also to ensure the taxpayer receives full benefit for their investments.

The non-government members of the Taskforce stress the need to consider the range of manufacturing initiatives as one package, and to do so from the perspective of what can support businesses to collaborate and innovate. In that respect it is imperative that the establishment of MTIC is worked in with other developments in the innovation system such as CSIRO's plan for its manufacturing precinct highlighted below. It is also imperative that the proposed Smarter Australia Network is one interconnected virtual reality across the innovation system rather than a series of silos and isolated islands of excellence.

EXAMPLE OF HOW CSIRO AND MONASH MAY DEVELOP THE AUSTRALIAN MANUFACTURING AND MATERIALS INNOVATION PRECINCT IN CLAYTON, VICTORIA ⁸⁹

In response to Australia's need for a more connected, globally recognised and sustainably competitive manufacturing industry, Monash University and CSIRO are working together through a strategic relationship agreement to develop the Australian Manufacturing and Materials Innovation Precinct (AMMIP) in Clayton, Victoria. Clayton forms a natural location for the AMMIP, as it is within the South East metropolitan region of Melbourne, which houses a significant number and range of advanced manufacturing companies, the Australian Synchrotron and the Melbourne Centre for Nanofabrication. The vision for AMMIP is to act as a hub for a wider network of interconnected industry and research based facilities (eg. National Food Innovation Hub, Queensland Manufacturing Institute, design innovation collaboration with Queensland University of Technology, Swinburne University National Faculty of Design and Advanced Manufacturing Centre on its Hawthorn campus, RMIT's Advanced Manufacturing Precinct), that can translate know-how and promote the development of existing Australian manufacturing companies, as well as the growth of new companies across Australia, including in regional centres.

CSIRO is committed to the success of AMMIP and its ability to provide innovative technologies and boost the competitiveness of Australian manufacturers, and is therefore actively seeking capital investment in-excess of \$10 million from non-government sources (eg. application to Science Industry Endowment Fund, Universities, industrial investment) to assist with the realisation of AMMIP.

In order to act as a hub and bring together the wider capability network, AMMIP must be successful in working in a virtual way across Australia. This will require the implementation of broadband networks and new tools for collaboration at a distance or 'telecollaboration', which will transform the way we work. Many innovative tools to facilitate telecollaboration already exist around the world, which can be leveraged and combined with various CSIRO-developed tools to allow design, modelling and other services to be provided online. These types of productivity-enhancing services can be delivered online anywhere, anytime.

Combining these services with high definition video conferencing and tools for data collaboration will allow manufacturing and design teams to dynamically form and work together across Australia. For example, CSIRO computational modelling capability has been used to optimise processes including metal castings, milling and bio-mechanics. Other online capabilities could include risk modelling, supply chain logistics and transport optimisation.

Through its 'hub and spoke' collaboration model, AMMIP will bring together advanced manufacturing facilities from around the country creating scale and connection and an environment in which the proposed Manufacturing Technology Innovation Centre (MTIC) could be hosted. Whilst the MTIC could be housed at AMMIP, its crucial industry-led focus would still be maintained through the proposed establishment of a Board of Governance with leading multinational corporations, representatives of leading SMEs, Enterprise Connect, Queensland Manufacturing Institute, universities and State Governments.

Finally AMMIP is also proposing to house a new 'open access' Factories of the Future initiative. The Factories of the Future would be a facility made available to industry on an open access basis to provide advanced prototyping and production capability to Australian Industry.

The facility will be supported by research and development from the relevant research agencies and designed to be a reconfigurable multi-user facility for manufacturing companies for design innovation, micro automation, advanced processing and additive manufacturing with industry, complemented by technical advice and R&D services to assist firms' process and product development and business model innovation needs.

AN EMERGING AUSTRALIAN ADVANTAGE: DESIGN

As discussed, design is a critical enabler of productivity and innovation, and has been shown to play a significant role in the growth of firms and sectors. Building on a strong engineering tradition, Australia can and must succeed in design if its manufacturing industries are to create the differentiated products and services that consumers want and are prepared to pay for.

Aspects of Australian industrial design, particularly those stemming from a strong engineering base, are world class. Similarly our related marketing and branding capabilities are world class.

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.

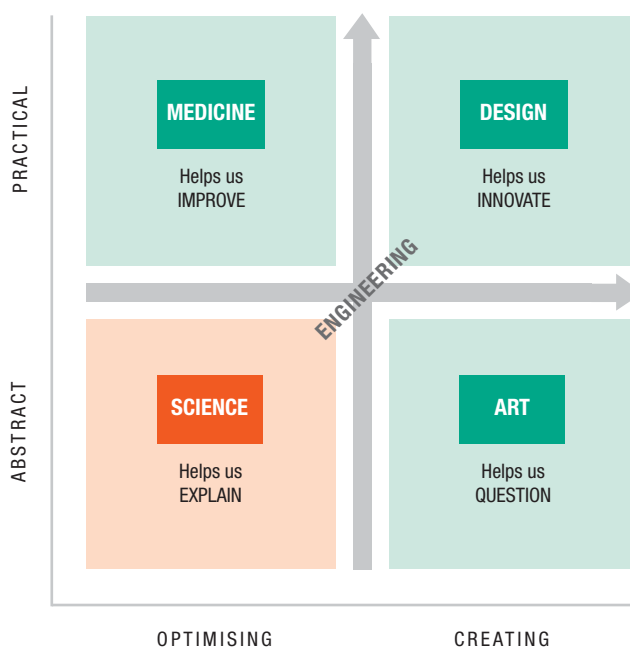
Design should be seen as a ubiquitous capability for innovation. The non-government members of the Taskforce propose that the Commonwealth Government commission an independent panel to advise on the changes needed to maximise the potential of design thinking on innovation in Australia. This review would consider implications for design research, design education, design practice, national design collaboration and the absorptive capacity of firms, and would involve open engagement of the entire design community.

The non-government members of the Taskforce also consider that that the design thinking approach form significant elements of the curriculum of the proposed Australian Leadership Institute.

Figure 5.3, based on the work of Professor Göran Roos, captures this emphasis.

Figure 5.3
DESIGN AS AN ENABLER OF CHANGE⁹⁰

Source: Roos, G. (2011), 'Manufacturing into the future', report for the South Australian Thinkers-in-Residence program.



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.

Two of the most promising are the US National Science Foundation Innovation Corps and the Queensland Manufacturing Institute’s Ulysses Program (outlined in Box 5.3.) which have inspired the delivery of a pilot ‘design integration’ program for manufacturing firms by Enterprise Connect’s Creative Industries Innovation Centre.

The evolution of such programs among business service providers, business schools, design schools and others, and opportunities to expand their reach, should be examined by the proposed independent panel.

Box 5.3 ENTERING GLOBAL SUPPLY CHAINS: A CASE STUDY

US NATIONAL SCIENCE FOUNDATION INNOVATION CORPS

The US Innovation Corps combines technological, entrepreneurial and business skills to help develop scientific and engineering discoveries into technologies, products and processes.

It is focused on areas of science and engineering with applicability to business – and with near-term benefits for the economy and society.

The NSF strategically identifies nascent concepts to leverage its investment in basic research.

The scheme uses a new design-based method to make scalable technology start-ups fail less.

This is a public–private partnership in delivery, with 150 teams of elite scientists due to go through the Lean Launchpad Class.

At a cost of US \$50,000 per project, it involves a six-month commitment to a team of investigator, experienced mentor and entrepreneurial lead.

The Innovation Corps aims to bridge the gap between research funding running out and having enough customer and market knowledge to raise private finance (which is the program's goal).

Building on its early success, the Lean Launchpad Educators Program has now been developed for those who teach entrepreneurship.

ULYSSES PROGRAM QMI SOLUTIONS AND QLD GOVERNMENT

The Ulysses Program – supported by the Queensland Government and delivered by the Queensland Manufacturing Institute – seeks to transform business through design-led innovation.

It integrates world best practice 'design thinking' to guide businesses towards market leadership.

It aims to facilitate major shifts in business culture by helping firms to identify unmet market needs, tap into the opportunities presented and empower companies to build an innovation culture.

The program covers the breadth of corporate strategy to make firms more customer focused in their management style, more creative in their operations and more innovative in their thinking.

Ulysses is one of a number of such small-scale programs operating at national and state levels, all of which have been heavily informed by the success of similar programs in New Zealand and the UK.

Ulysses is a practical demonstration of how design thinking is becoming synonymous with business innovation, and how manufacturing is at the frontline of what is a transformation.

IMPLICATIONS FOR ROLES AND RESPONSIBILITIES

The scale of change implied by the proposal for Smarter Australia Network requires that such an initiative be led by our national government, and integrated into our national economic strategy and global brand positioning. However, the network and innovation hubs need a prominent role for industry to reflect the new emphasis on applied knowledge. More broadly, while this is a national approach, it is also about building regional specialisation in order to build a broad-based national economy. As such, individual hubs should have a large element of local stewardship, should involve State Governments as partners, and should (generally) be based around local universities.

This approach has a number of implications for the roles of various stakeholders:

- For manufacturing businesses, it would mean a rebalancing of the national innovation system in support of their practical needs, a requirement to engage more actively in collaboration, and a need to better connect large and small firms through value chains.
- For universities, it would mean a greater focus on applied research in areas relevant to regional advantages, supporting new spaces for researchers to develop solutions beyond the confines of existing rules and incentives, and reclaiming their public role as bearers and transmitters of valuable knowledge.
- For publicly-funded research organisations (PFROs) such as CSIRO, DSTO and CRCs, it would mean a more coherent and collaborative role within an open national innovation system, and the opportunity to leverage international reputations for national benefit.

- For CSIRO specifically, it would mean a stronger and broader leadership role within the national innovation system, including in support of the Smarter Australia Network, requiring greater systems, managerial and creative skills, and a partnering ethos in business-led Innovation Hubs.
- For Governments, Commonwealth and State, it would require a new degree of cooperation and focus, with both recognising the need to harness local specialisation, national coordination and global engagement. It would also require the redirection of existing funding to this aim, and a change in the incentive structures for funding and research to support applied knowledge.

However, the largest implication is for national economic strategy, which would specifically aspire to build a broad-based economy underpinned by the strength of numerous industries across numerous regions.

Smarter SMEs

A package of measures to support smarter SMEs is designed to improve access to knowledge and resources for SMEs, and to support those with the commitment and potential to grow into the globally oriented medium-sized firms Australia lacks.

This includes a more cohesive and streamlined business interface that draws on all relevant resources to help manufacturing SMEs – an enhanced Enterprise Connect. It also includes practical and proven measures to strengthen the limited contribution researchers and government agencies currently make to innovation in SMEs.

Most successful manufacturing companies and their leaders understand that success or failure depends on their own commitment to growth.⁹¹ The schemes proposed here involve mutual obligations and a spirit of partnership. Participating firms in these programs need to co-fund activities and need to agree to share their experiences with others. In return, policy will be more heavily focused on their specific needs for growth and services will be more joined up than currently.

ENTERPRISE CONNECT – FOCUSED ON VALUE ADDING FOR SMEs

The non-government members of the Taskforce consider it important that Enterprise Connect be focused on effective and efficient service provision. To help achieve this, it is recommended that it be established as an entity with similar or greater management and operational flexibilities as are enjoyed by Austrade and Commercialisation Australia.

The non-government members of the Taskforce also recommend that Enterprise Connect be upgraded, its funding to support manufacturing firms be significantly increased and its relationships and connections with other agencies be formalised. This will help Enterprise Connect exercise greater leverage and capacity in assisting manufacturing firms meet the competitiveness and productivity challenges they face, specifically Enterprise Connect should be configured as:

- An entity with similar or greater management and operational autonomy as that enjoyed by Austrade and Commercialisation Australia.
- The ‘one front door’ for SME support, with a series of partnership agreements with other agencies to ensure that businesses receive appropriate support.

To achieve this, the government should carefully consider the option of merging or more closely integrating the operations of Enterprise Connect and ICNL Ltd. The Minister for Industry and Innovation and the Minister for Trade and Competitiveness should play a more active role in the prioritisation of joint activity between Austrade, Enterprise Connect and the Industry Capability network.

While continuing to report to the Minister, such an arrangement would enable Enterprise Connect – beyond providing a base level of service that reflects general market failures – to dedicate resources to those areas it believes will add most value.

Importantly, greater integration with ICNL and a new approach to co-operation with the state ICN network would help leverage up the rich architecture of resources that exist (supply advocates, national sector managers, the formal and tacit knowledge of the staff of the ICN and Enterprise Connect networks).

This architecture is not currently delivering the high level impact it is capable of delivering. It currently lacks strategic co-ordination and the kind of collaboration that helps industry win more international business opportunities by connecting up the getting access and getting competitive functions of trade and industry policy. Australia can do better than this. We must do better than this.

A reconfigured Enterprise Connect would ideally involve:

- Continuing to be the front door for business support services for all SMEs.
- Working with other agencies interacting with SMEs (such as Austrade, Commercialisation Australia, Supplier Advocates and state-based providers) to ensure that there is 'no wrong door' for businesses seeking support.
- Complementing the Manufacturing Technology Innovation Centre (MTIC) and the Industrial Transformation Research Hubs, and providing input to those measures that emphasise the applied knowledge needs of SMEs.
- Reprioritising time, support and services towards those SMEs it assesses as having the highest potential to value add, subject to those firms demonstrating a commitment and potential to grow.
- Actively promoting and prompting industry supply chain initiatives, such as under its Supply Chain 21 (SC21) offering where primes and SME suppliers work together to lift quality and productivity, with scope for modest incentives to de-risk experimental collaboration for large firms and SMEs.
- Continuing to refer to Austrade, Commercialisation Australia and other specialist providers those firms that need more specialist advice on expanding into international markets or financing development.
- Connecting SMEs to specialist providers and policies to support access to technology, managerial and creative capabilities (through linkages to programs such as Leadership 21 and Ulysses).
- Identify and work with industries facing transition in demanding value chains to transform their capabilities to align with the needs of related value chains.

The non-government members of the Taskforce propose a business-focused approach, through a 'one front door, no wrong door' philosophy across all government agencies providing business services. This would include commitments to making knowledge, resources and market insight available via the Business Entry Point, service agreements that support collaboration and information sharing, and co-location of physical offices where feasible.

The objective of these proposed changes is to ensure that the existing suite of activities within Enterprise Connect that support manufacturing activities are enhanced and attract additional resources so that it can help drive the systematic upgrading of manufacturing SME capability and management skills, better supply chain links and performance. This includes segmenting its existing client base and, in partnership with other agencies, identifying and supporting high growth high performance firms, a theme that has been central to this report.

Better interaction between Enterprise Connect, its manufacturing clients and the research sector is also essential. As manufacturing firms upgrade their capabilities, they need to plug into different types and sources of assistance at different times. They face real transaction costs, so Enterprise Connect and related services need to continue to ensure they address these transaction costs. The non-government members of the Taskforce strongly believe that government support needs to be joined up and client focused, not transaction/KPI focused. When it is joined up and client focused, it can deliver enormous value to SMEs at very little cost.

IMPROVING RESEARCHER RESPONSIVENESS – MAKE IT EASIER FOR SMEs TO ACCESS KNOWLEDGE

As discussed, the non-government members of the Taskforce are concerned with the implications of Australia's supply-side model for innovation for the manufacturing sector. There is a need to develop new mechanisms that encourage researchers to directly assist SMEs in tackling their practical innovation challenges.

One such mechanism employed by a number of nations and regions around the world is Innovation Vouchers. Innovation Vouchers would increase the engagement between knowledge providers and SMEs. While the immediate focus is to raise the SMEs productive and innovative capacity, a wider goal is to increase linkages between SMEs and providers by creating new spaces that encourage collaboration.

Vouchers would also be used to enable the identification of good providers. To minimise the transaction costs for SMEs and knowledge providers, brokerage support would be available to connect SMEs and relevant researchers. Red tape involved in administration should be minimal. Vouchers would be redeemable for activities intended to introduce new technologies, products, processes or services, or significantly improve those currently existing. The value of the vouchers could vary, with vouchers for innovation activities such as:

- Accessing facilities for specialised measuring equipment, e-research, supercomputers, or nanofabrication as well as accessing design expertise.

- Accessing process improvement expertise and other technical assistance by drawing on the expertise of staff in the research or technology diffusion facilities.
- Accessing skills analysis, workforce planning and development expertise as it relates to building firm capability.
- Trial production runs or processes to demonstrate technical concepts.
- Validation or demonstration of the technical capabilities of the product, process or service, including scale-up, stability or reproducibility of a process.
- Implementation of new technology and implementation of new business models.

The purpose of vouchers is to refocus research effort on helping businesses to solve their practical problems through direct relationships.

SMARTER PARTNERSHIPS – MEETING SOCIETY’S NEEDS THROUGH INNOVATIVE SMEs

The non-government members of the Taskforce recommend that the Commonwealth Government introduce a whole-of-government Small Business Innovation Research (SBIR) or Smart SMEs style initiative. It also recommends that the Commonwealth, through COAG, actively encourage State Governments to develop their own versions of such programs.

Smarter Partnerships would see the Commonwealth itself becomes a more effective partner in Australia’s manufacturing SME innovation effort by introducing an initiative across Commonwealth agencies with significant research needs. This could be either a SBIR-style initiative that requires a small percentage of the external research for SMEs, or an internal market approach that enables government agencies to bid for projects. Tackling discrete challenges can enable governments to tap into distributed expertise in a range of areas where government alone lacks capability.

Innovative SMEs can be particularly adept at developing solutions for government agencies. Globally and in Australia, programs have been devised to meet the multiple barriers to innovation and firm growth, while also improving policy outcomes. Examples include the USA’s SBIR program and the Victorian Government’s Smart SMEs Market Validation Program, as described in Box 5.4. It is telling that both programs are very heavily oversubscribed. These programs support pre-commercial collaboration, and help to address finance, skills, product development and uncertain demand risks, thus enabling growth.

Evaluations of such programs reveal benefits for both participating departments and firms, who work together to translate ideas into practical solutions. But above all, they contribute to systemic innovation capabilities and outcomes. For participating firms, Smart SMEs is regarded as a better way to partner with government, as it involves collaboration in defining the problem and provides access to practical insight that is otherwise very hard to access. And it generates commercial gains – through new IP, new networks, new markets and new exports.

For government agencies, early collaboration around experimental concepts can avoid larger cost blowouts at a later stage. For example, in the reviews of SBIR, this was the major benefit cited by the USA’s Navy. Such programs enable government agencies to draw on distributed expertise and apply it to a diverse set of complex challenges that government agencies know they cannot meet alone.

ACCESS TO CAPITAL FOR SMEs

Well-established gaps in early stage finance markets, including venture capital, have widened considerably in the post GFC environment. Government programs to meet these gaps, such as Innovation Investment Funds, have limited coverage. Further, these programs have not affected the underlying problem that Australia lacks a vibrant venture capital market and that it is likely to continue to lack this.

Other small economies such as Israel, Denmark and Chile have met similar scale challenges by developing their own venture finance models. They have adopted various financing, stage-gate and governance processes to maximise impact, ensure cost-effectiveness and (particularly) leverage professional management.

The non-government members of the Taskforce are conscious that a wider range of start up and SME finance needs are not being adequately catered for, with the covenants and other requirements attached to loans in many cases unacceptable.

Box 5.4 SMART PARTNERSHIP PROGRAMS

SBIR – USA

Created in 1982, the Small Business Innovation Research (SBIR) program is a USA's Government program in which 2.5 per cent of the total external research budgets of all federal agencies with external research budgets in excess of \$100 million are reserved for contracts or grants to small businesses. In 2010, that represented over \$1 billion in research funds. Over half the awards are to firms with fewer than 25 people and a third to firms of fewer than 10.

SBIR stimulates innovative research by small businesses (defined as firms of less than 500 employees) while providing government agencies with new cost-effective solutions to technical and scientific problems.

SBIR projects are directly focused on solving vital problems for some major segment of the economy or society. This is assured through alignment with agency goals.

SBIR projects must be leading edge in either discovery or application.

The contracts specify a staged approach covering feasibility (\$100k), development (\$750k) and public sector implementation, which may lead to further (non-SBIR) R&D funding. In the US, this program is more significant than venture capital for early stage technology firms, providing the largest pool of seed-stage R&D funds in the USA.

An Australian Small Business Innovation Research (SBIR) program could be modelled on similar programs in the USA and UK. It could mandate a per cent of designated R&D funding in relevant public agencies to support the development of technological and innovative capability in SMEs to benefit agencies as purchasers.

SMART SMEs – VICTORIA

The Smart SMEs Market Validation Program (MVP) is a \$28 million grant program that seeks to engage with both government and business to promote innovation.

The program aims to support SMEs to develop innovative products, processes and services focused on meeting the future technology needs of Victorian public sector entities.

The MVP targets the development of new technologies or the significant advancement of capabilities to existing technologies that meet specific technology needs identified by public sector entities. With these new technologies, public sector entities will be able to make a significant improvement in their products, processes or services, and the SME will have created and tested new marketable IP.

The MVP involves a three-stage process with the first stage identifying the specific technology needs of Victorian public sector entities. These technology requirements will then be released through a Call for Proposals to invite the SME market to propose new technology solutions to the identified need.

Successful SMEs will receive a grant up to \$100,000 to undertake a feasibility study over three months. These feasibility studies will then be evaluated for further funding of up to \$1.5 million over two years to undertake R&D to Proof of Concept.

The negotiation of agreements sees responsibility devolved to the departments with a frontline awareness of how new approaches may serve their goals. It creates an internal market (among agencies) in strengthening the role of innovation in procurement, in contrast to the mandated approach of schemes such as SBIR. The policy actively prompts collaboration between the key actors, which is typically needed to build the relationships and capabilities to solve problems.

Smart SMEs addresses the barriers to firm-level innovation (risk, return, capabilities, networks, uncertain demand) and demonstrates the value of targeting business support to firms with the potential for high-impact, rather than all firms.

The non-government members of the Taskforce therefore recommend that a Canadian-style loan guarantee scheme be considered for its applicability to the Australian context.

Parallel schemes operate in the automotive industry and will soon operate through the Clean Energy Finance Corporation to assist manufacturers wishing to diversify but facing access to capital issues because of the perceived risk.

IMPLICATIONS FOR ROLES AND RESPONSIBILITIES ⁹²

To lift the limited contributions researchers and governments in Australia make to SME innovation, the suite of measures proposed place greater emphasis on the demand-side, while also recognising that it is ultimately relationships between demanding customers and responsive suppliers that generate innovation.

Building SME connections and capabilities would imply change for all actors:

- SMEs, in return for greater support in accessing capital, developing capabilities and managing the risks and costs of product development, will need to commit to change themselves and embrace more rigorous management support.
- Large firms receiving government support will need to commit to good faith efforts to strengthen SME engagement in their value chains, recognising that the breadth and depth of these value chains ultimately affects their own performance and opportunities.
- Researchers will need to adapt to mechanisms that refocus relationships of solving practical problems for businesses, with this implying a more direct and collaborative partnership.
- Governments will need to recognise that a strong pool of innovative SMEs is in their interests and that of the wider economy. This pool can help overcome the systemic lack of medium-sized firms and the practical need for government agencies to tackle new challenges that they cannot meet alone.

Smarter workplaces

To recognise that productivity gains are ultimately realised in workplaces and firms, a new national partnership for Smarter Workplaces is proposed. This requires sustained commitment from industry, unions, employees and government to build the managerial and workforce skills – and the innovation culture – that high performance workplaces demand.

This would involve a new partnership and national conversation – with employer organisations and unions assuming responsibility and stepping up to lead – that can not only have practical impact in workplaces, but also start to shift cultures towards collaboration and innovation, and maintain momentum beyond political cycles.

A NEW NATIONAL PARTNERSHIP FOR SMARTER WORKPLACES

One renowned workplace expert recently argued that Australia stands a chance of being a world leader in management and workplace practices. Given the large gap between that aspiration and practice, this suggests very significant scope for gains.

The non-government members of the Taskforce submit that smarter workplaces can deliver business productivity, rewarding work, and a stronger economy and society. Change needs to address management and workforce capabilities, and cultural attitudes.

The non-government members of the Taskforce also recommend showcasing good practice to help develop a wider national conversation on high performing workplaces as a new element of economic policy.

WORKPLACE CAPABILITIES

Improved management practice opportunities would be made available through a national expansion of program offerings through Enterprise Connect. As is currently the case, this would involve a range of service providers and encourage healthy competition over time.

In addition, the non-government members of the Taskforce note the potential for improved management education through the proposed Australian Leadership Institute.

RESEARCHERS IN BUSINESS

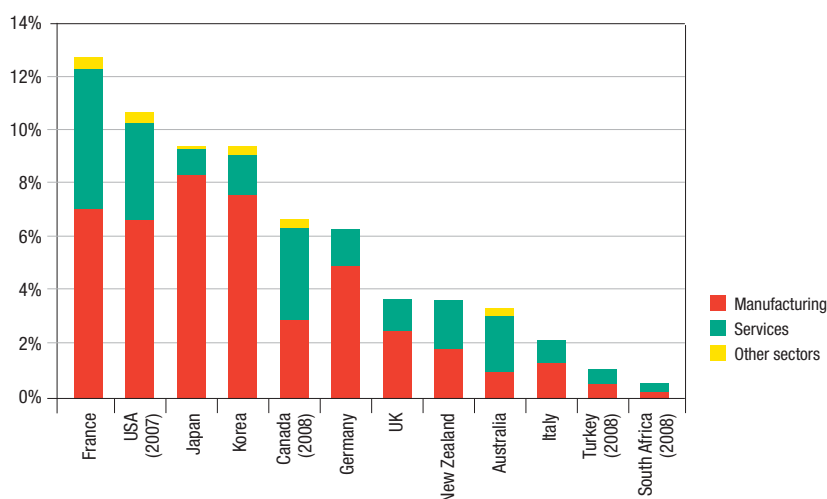
Given the significant cultural divides between research and industry, the non-government members of the Taskforce recommend a significant effort to expand take-up of the Researchers in Business program as a first step to overcome the cultural barriers between research and industry.

As this brings researchers into firms on a local basis, the personal relationships that are critical to collaboration can start to develop. This form of proximity is difficult to replicate other than on a personal basis, making this program a model that could ultimately underpin stronger knowledge flows between research and industry.

A common barrier to the ability of SMEs to develop differentiated solutions is a lack of skilled workers. The number of researchers engaged in innovative activities in Australian manufacturing reveals a significant disadvantage, as shown in Figure 5.4.

Figure 5.4
RESEARCHERS IN MANUFACTURING
AND SERVICES
 2009

Source: OECD Science, Technology and Industry Scoreboard 2011.



The Researchers in Business program offers an important first step in addressing this concern, though take-up within the program would need to be expanded significantly to have systemic impact.

SUPPORTING WORKPLACE CHANGE

Redesign of management and job tasks can see workplaces doing smarter things in smarter ways. However, this will require a shift in not just the practices and skill sets of managers and workers, but also in their culture and mindsets. It is proposed that such an agenda involve government as an active partner and supporter, but that the initiative is not owned solely by government. The nation may be better served by broader approach to outlast political cycles that also involves the meaningful participation of industry, employees and unions.

Given the current state of manufacturing, industry and union leaders of the non-government members of the Taskforce will be focusing their efforts on:

- Developing a broader and deeper knowledge of what firms and employees need to significantly transform the productive performance of their businesses and workplaces, and how the change process at the level of the firm and work place can be better managed.
- Transferring that knowledge into new content and approaches in delivering education and training material for members through internal union and employer association programs, and through new alliances with external providers with expertise to add value to the training/education effort.
- Developing high level capabilities internally and through new alliances with specialist external providers to assist members in workforce development initiatives and to improve the productive performance of firms through an agenda for developing high performance workplaces
- Embedding a new culture in employer and union organisations that prioritises these activities regardless of the changing political landscape.

Industry associations and unions have deep insight into the practical needs of workplaces, and the basis has been laid for constructive dialogue. As the business and union leaders suggested to the Prime Minister and Ministers Combet and Shorten at the May 25 Taskforce meeting:

“We believe that the more important dialogue and policy agenda is about the long term changes that need to occur in Australian manufacturing if the industry is to prosper in the future. One example of this is progressing discussions about high performance workplaces and win-win strategies for workers and firms in engaging in a more collaborative approach to workforce development. This has considerable potential to unlock significant improvements in productive performance. But there are also risks that ‘a narrow cost cutting agenda’ could undermine the gains leaving a high stress-low trust workplace culture.

Leadership is required to build a new culture of productivity and participation at the level of the individual company, where workers and the company collaborate to strengthen their ability to capitalise on the opportunities that will arise from stronger business systems, better research and development, more employee engagement, more participatory decision making, better development and utilisation of the skills of the workforce and a stronger emphasis on quality and innovation as drivers of high performance workplaces.”

With more than 5,000 manufacturing Enterprise Bargaining Agreements to be negotiated over the next four years, there is an opportunity to translate high-level directions into new capabilities that can assist businesses and workers alike in building productive and innovative workplaces. As these discussions evolve, stakeholders will be better placed to consider whether broader institutional and resourcing support needed to reinforce what stakeholders accept must ultimately be a cultural, attitudinal and behavioural change.

Consideration should also be given to the role of workplace intermediaries that can offer practical advice and support to those firms seeking it with the managerial, workforce and cultural strategies needed to lift the performance of workplaces.

There is also a need for improved data (such as was provided by the Australian Workplace Industrial Relations Surveys of the 1990s) on workplaces and their performance to enable an agenda that evolves with evidence.

IMPLICATIONS FOR ROLES AND RESPONSIBILITIES

However, for this to occur, roles need to be well defined so as to ensure that there is alignment around goals and a collaborative approach.

- Employer organisation and unions can play a critical role in both driving cultural change and as key intermediaries in connecting national aspiration with practical change at the level of workplaces.
- Government can empower industry and union representatives to develop the new capabilities needed to assist managers and workers to work together in building high performance workplaces.
- Workplace researchers can contribute to a new community of practice that would showcase and consider good practices, ensuring that change in workplaces is informed by evidence.
- Intermediaries with expertise in good practice – including those supported by industry associations and unions – could assist workplaces directly in implementing change and focusing workplace culture on innovation.

SECTION 5 POLICY DIRECTIONS – FOOTNOTES

77. Issues concerning dumping and AIP are further developed in Appendix One.

78. Some Industry Skills Councils have developed expertise in this area.

79. CA could easily spend substantial additional amounts on large proof of concept or early stage commercialization applications. In an environment of scarce resources the funding supplementation recommended above might best be quarantined to the funding provided for 'experienced managers'. This would also be consistent with a central theme of this report. The chair and Board of CA could advise the Minister on the workability of this proposal.

80. On several occasions non-government members of the Taskforce noted the problems with sea-transport for Tasmania. Manufacturing employment has been harder hit in Tasmania than any other State (down almost 30 per cent since the GFC) and there is a case for the transport infrastructure and other manufacturing-related issues to be addressed as a matter of urgency. The sea transport issue in particular needs a long term solution to attract the future investment Tasmanian manufacturing requires to sustain growth and future competitiveness.

81. Hwang, V. and G. Horowitz (2012), *The Rainforest: The Secret to Building the Next Silicon Valley*.

82. Demonstrating the power of foreign direct investment, in Switzerland 75 per cent of innovation activity reflects the presence of multinational firms in their traded industries.

83. See http://www.sgsep.com.au/files/Facilitating_foreign_direct_investment_0.pdf for a discussion of what drives foreign investment decisions.

84. Building on the success of initiatives such as the Defence Supply Chain Improvement Initiative, and the Victorian Small Technologies Industry Upgrade Program.

85. See OECD (2010), *Higher Education in Regional and City Strategies: the State of Victoria*, p. 19.

86. West, J. (2007), *A Strategy to Accelerate Innovation in New South Wales: Outline for Policy Development*.

87. This approach has had strong success in Finland. See <http://aaltodesignfactory.fi/>.

88. West, J. (2007), *A Strategy to Accelerate Innovation in New South Wales: Outline for Policy Development*.

89. The non-government members of the Taskforce wish to thank CSIRO for providing this summary. On July 12 the non-government members of the Taskforce convened a roundtable discussion on the MTIC. Outcomes from the roundtable in terms principles for establishing MTIC, preferred options for its role and functions and ways in which MTIC could be scaled up to have a wider reach and more significant impact will be provided as an input from the business and union leaders to the two stage due diligence process recommended in this report.

90. Roos, G. (2011), *'Manufacturing into the future'*, report for the South Australian Thinkers-in-Residence program.

91. The non-government members of the Taskforce are encouraged by several initiatives being used to better connect small and medium size businesses with each other and to provide leadership training for SME management. In particular the High Performance Consortium Initiative amongst Victorian manufacturers and the Leadership 21 program developed by Enterprise Connect and Mt Eliza Executive Education are examples of practical initiatives that can really make a difference to the productivity and competitiveness of Australian manufacturers. These are discussed in Appendix Four.

92. An important message the non-government members of the Taskforce want to emphasize is that a number of these measures for growing SMEs and developing their capabilities can become self funded self help initiatives over time. The example of the High Performance Consortium illustrated in Appendix Four shows that this is the case.

NEXT STEPS

Recapturing reform ambition: the need for leadership

The non-government members of the Taskforce propose a simple strategy:

Smarter Manufacturing for a Smarter Australia

This strategy is underpinned by the aspiration of a future in which Australia's economy is built on more than a few industries and a few regions.

The task of communicating the aspirations and policies in this report, and building support for them, should not be underestimated. Former Treasury Secretary, Dr Ken Henry, summarises the challenge.⁹³

“Today we find ourselves having avoided a recession that paralysed the rest of the developed world. We have low inflation, low unemployment, and a terms of trade boost that has, to date, boosted average living standards. How does one, today, communicate the imperative for action?”

In the view of the non-government members of the Taskforce, our best hope of explaining the case for change is explaining the reality of today's patchwork economy – and acknowledging that it contains both pressures and opportunities that must be dealt with.

In the Asian Century, the opportunities of Australia's traded industries are significant.

However, their potential is unlikely to be realised without a similar approach to that adopted for non-traded industries in the 1990s through a National Competition Policy.

The non-government members of the Taskforce propose the overarching goal of a broad-based national economy. We need to build a portfolio of traded industries that have world-competitive levels of productivity and are characterised by continuous innovation.

This is the only approach that maximises growth and recognises uncertainty. The alternative – of putting all of our eggs in the one basket – is neither good for the economy, nor good for the nation in the long-term.

Further, to achieve the value adding that is imperative in today's high cost environment, the non-government members of the Taskforce propose a significant shift from the old supply-side model that dominates policy today, to a system placing greater weight on 'market pull'.

A focus point for this shift would be a series of new globally significant Smarter Australia Hubs, a pathfinder project for which is proposed in food.

The non-government members of the Taskforce also propose a Smarter SMEs strategy that tackles the minimal direct contribution of researchers and government agencies to business innovation. And in recognition, that change ultimately occurs in real workplaces, a Smarter Workplaces agenda suggests a path forward based on relationships rather than rules, so that managers and workers together can manage change and drive innovation.

To paraphrase a non-government member of the Taskforce, reclaiming Australia's reform ambition requires us to ***'ignite a burning ambition where we lack a burning platform'***.

With leadership, the non-government members of the Taskforce submit that Australians will follow. We have faith not only in their practical common sense, but also in their ability to still see the big picture.

Expressing confidence and conviction

The non-government members of the Taskforce acknowledge that Australia's glass is more than half full.

However, to build ***Smarter Manufacturing for a Smarter Australia*** we also need to change. We need to get smarter in all that we do, and become known the world over for our high quality solutions, for our innovation and for our design. This is about how we need the world to see us differently, but also how we choose to see ourselves. It is a message of confidence and conviction.

Australian manufacturing needs to play its part here by portraying the story of what is changing within the sector, as well as the new opportunities being created. This needs to be a story in which Australian manufacturing can:

- Provide Australians with engaging, challenging and rewarding jobs and careers, based on solving real world problems and seeking new opportunities.
- Forge new sources of regional and national growth, jobs, exports and innovation, underpinning Australia's broad-based economy.
- Increase the benefits from Australia's natural advantages and from its scientific, managerial and creative capabilities.
- Underwrite national security and resource security over the course of a century that is likely to see substantial volatility and uncertainty.

The scale of the challenge faced by many in manufacturing is daunting. Indeed, the cumulative pressures are unprecedented and the uncertainties real. This makes it more important, not less, to act with confidence and conviction.

The non-government members of the Taskforce call for a clear statement by all parties – starting with our Commonwealth Government – that Australian manufacturing not only matters, but that it is critical to the broad-based economy we need and the sort of society we aspire to.

Here, manufacturing leaders indicate their intention to lead. The perceptions of Australian manufacturing matter at multiple levels, from the views of parents considering their children's futures, of our brightest students considering manufacturing as a career, and of overseas investors considering where they choose to locate their businesses and research facilities.

While government support and policy advocacy is needed, the sector itself must also demonstrate leadership.

A shared responsibility

One of the key messages of this report is that economic prosperity demands contributions from everyone in our economy, and everyone has to have a stake in it. In addition to governments, wider stakeholders need to play their part in the collective stewardship required to affect change.

In the past, the manufacturing sector has been seen by some, fairly or otherwise, as resistant to change. The manufacturing leaders on this Taskforce, of industry, unions and research, state unequivocally that we need to change.

Past economic prosperity was built on efficiency, on creating open and competitive markets that would enable resources to freely flow to their most valuable use.

Building an innovation economy is different. It requires convincing a wider range of actors to not only accept change, but to play an active role in it.

Building '**a Smarter Australia**' requires the commitment of not only leaders and policy makers, but managers, workers and citizens.

Australian reform is at its best when it is sustained not only by policy leadership, but when a wider leadership movement including industry, unions and others jointly makes the case for change. We need to rediscover that sense of shared stewardship.

Australia's future economy will be different from today's and we need to do a better job of communicating how it will be different. Both the changes that will be forced upon us and the changes we choose to embrace as a nation.

The non-government members of the Taskforce's experience has been enlightening for many members, reminding us of the importance of focused dialogue. Manufacturing leaders signal their intention to continue the conversation to ensure that reforms are achieving change.

However, in addition to this, and given the linkages between manufacturing and other sectors, the non-government members of the Taskforce believe that a wider and more regular economic dialogue is needed to build a shared understanding of change and how we all position for it.

To this end, the non-government members of the Taskforce propose an annual **Australian Economic Dialogue**. This would not be a decision-making forum or a place to argue over small details.

The Dialogue would inject, once a year, the sort of long-term perspective missing from today's discourse. It would welcome different perspectives; different levels of government and different disciplinary lenses with the aim of helping all of us (including the Australian community) understand change and see the big picture.

Recognising the need for distributed effort, the non-government members of the Taskforce also propose the establishment of an **Australian Leadership Institute**. This would develop the range of new design-led leadership skills needed across all sectors, supplementing the programs of graduate schools, business schools, design schools and policy schools.

Such an Institute would be a world-first – a global and local statement that a smarter Australia values strategic perspectives, encourages people to think and act beyond boundaries, and is committed to building the new capabilities needed to change.

To ensure that the message and substance of a Smarter Australia reaches down to workplaces and communities, and reaches out to the world, the non-government members of the Taskforce recommend that specific strategies be developed to support networks of both local champions and global ambassadors.

Taking the agenda forward

The non-government members of the Taskforce believe that this process, as well as the Henry Review into the Asian Century, has the capacity to generate significant momentum. However, maintaining this momentum will require not only a strong commitment, but also clear pathways for delivery and follow-through.

An early but important step would be for the Commonwealth to initiate a dialogue with State and Territory leaders. State Governments will be critical to such an agenda, both to help cut through the duplication, red tape and incoherence of overlapping policies and as partners in the bottom-up approach proposed.

The Smarter Australia agenda is one that requires Commonwealth-State collaboration, potentially involving COAG National Partnership payments.

The agenda proposed here is a complex one. It will require sensible sequencing and the engagement of multiple stakeholders. Notwithstanding the urgent pressures on parts of manufacturing, the non-government members of the Taskforce stress the need to get it done right rather than get it done fast.

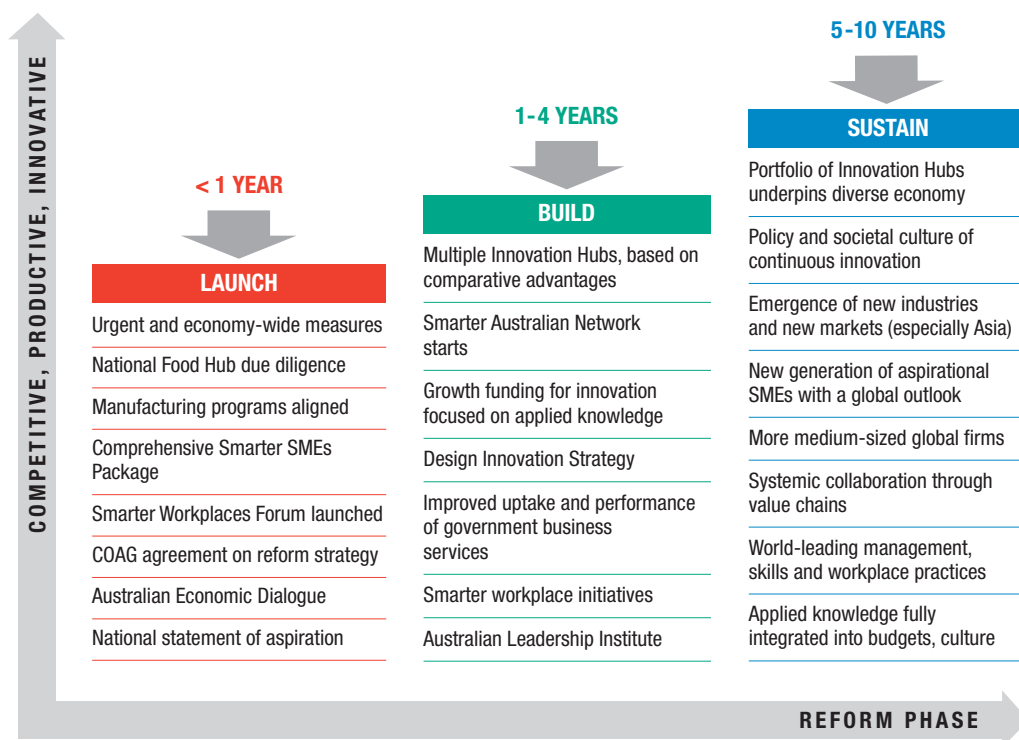
A useful discipline would be for the Commonwealth Government to set some bold and ambitious, but also tangible and realistic, goals for the years ahead. Examples could include a broader base of strong exporting industries, more small firms growing to mid-sized firms, and actual productivity in workplaces.

Clear objectives and monitoring of progress towards them impose a useful discipline on all parties, and support the stewardship and evolution of the policy agenda itself.

Figure 6.1 proposes a roadmap and timeline for the reforms proposed.

Figure 6.1

SMARTER MANUFACTURING FOR A SMARTER AUSTRALIA – ROADMAP



Many of Australia’s largest opportunities require us to work across boundaries – whether it is forging new partnerships between our food and mining industries, and our manufacturing and service sectors; combining the different strengths of our cities and regions; or finding common ground between managers and workers on the job.

We need to see different parts of our economy grow together so we can provide a great quality of work and quality of life for the vast majority of Australians.

Australia has a narrower set of policy options than is often portrayed. We can grow together because it makes economic and social sense, or not grow at all. The path of continuing divisions is not one that Australians will find acceptable.

To grow together, we need to understand that collaboration ultimately depends on willing partners who can see long-term benefits. Sometimes this needs a prompt from government, but above all it requires a shared commitment from all of us.

Manufacturing leaders on this Taskforce offer that commitment. We encourage the Commonwealth Government to embrace Smarter Manufacturing for a Smarter Australia.

SECTION 6 NEXT STEPS – FOOTNOTES

93. Dr Ken Henry (2011), Australia 2011: Opportunities, Challenges and Policy Responses, Giblin Lecture, University of Tasmania, 4 March 2011.

CONSOLIDATED LIST OF RECOMMENDATIONS

Recommendation 1

The non-government members of the Taskforce recommend that the Commonwealth Government make a clear statement that Australian manufacturing not only matters, but that it is critical to the broad-based economy we need and the sort of society we aspire to. In making this statement, the non-government members of the Taskforce recommend the following five-point policy framework which underpins the recommendations of this report and forms the basis of the Commonwealth Government's response:

- 1.** To address the urgent challenges facing many parts of Australian manufacturing, and the real and imminent danger of large losses of jobs and capabilities, specific measures are proposed to boost the public and private investment pipeline, strengthen value capture from large projects in the existing pipeline, and help businesses, workers and communities manage change.
- 2.** To help reboot economy-wide productivity growth, encourage investment and reduce the costs of doing business, a targeted stimulus to demand and initiatives in transport infrastructure, broadband, energy, regulation and taxation are proposed.
- 3.** To address Australia's underlying competitiveness, deeper collaboration is needed to not only generate, but also disseminate and apply knowledge. This calls for fundamental changes in behaviour on the part of researchers, research organisations and businesses. As part of a broader overhaul, the non-government members of the Taskforce propose the development of globally-oriented innovation precincts that build critical mass around our comparative advantages and opportunities and a new Smarter Australia Network linking businesses, research organisations and others is proposed to address systemic barriers to more widespread collaboration.
- 4.** To address the multiple barriers facing SMEs, and to help more SMEs grow into the innovative, global mid-sized firms Australia lacks a number of steps are proposed: that Enterprise Connect be enhanced and re-focused; that practical and proven measures are put in place to address the weak contributions both researchers and governments currently make to SME innovation; to lift the capacity of SMEs to absorb new knowledge; to introduce and embed a greater focus on design, and to examine the potential to improve the access to finance for SMEs.
- 5.** To sustain productivity growth into the future with continuous innovation in managerial and workforce skills and practices, a new national conversation between industry, unions and government around Smarter Workplaces is proposed. To recognise that productivity gains are ultimately realised in workplaces and firms, a new national partnership for Smarter Workplaces is proposed. This involves a sustained commitment from industry, unions and government to build the managerial and workforce skills and practices – and the innovation culture – that high performance workplaces demand.

Managing current pressures

Recommendation 2

The non-government members of the Taskforce recommend that a package of short-term measures be considered to help counter the cyclical factors confronting key manufacturing subsectors as set out in this report.

Recommendation 3

The non-government members of the Taskforce recommend that the Commonwealth Government bring forward and increase investments in infrastructure projects to stimulate demand coupled with appropriate local content and Australian Industry Participation provisions to support projects with a high need for Australian produced components and manufactures.

Recommendation 4

The non-government members of the Taskforce recommend that measures to stimulate residential and commercial construction should be considered given the current weakness in demand and soft prices. State budgets – as evidenced by New South Wales (NSW) – are starting to reflect this. There is also a need for these short term measures to focus on smoothing the peaks and troughs in defence procurement. The Industry Minister should consult with his state counterparts and call for a specific focus on government car fleet orders. These and other related measures should be the focus of early government action.

Recommendation 5

The non-government members of the Taskforce recommend that the Commonwealth Government expand the Buy Australian at Home and Abroad initiatives by selecting large Australian infrastructure projects and specific export opportunities, then working in concert with the Supplier Advocate program, the Industry Capability Network and Austrade to encourage local businesses to compete for those projects. This is needed in both the short and longer term.

Recommendation 6

The non-government members of the Taskforce recommend that in examining its anti-dumping policy, the Commonwealth's proposed inquiry into establishing an anti-dumping authority ensure that any new entity is properly resourced consistent with the material presented in Appendix One of this Report. In addition, in the context of the current environment, there is a need to enforce a rigorous approach,

including the continued operation of the International Trade Remedies Forum as well as appropriate resourcing for ongoing operations and strike forces. This needs to be supported by a more systematic and comprehensive approach to negotiations aimed at removing non-tariff barriers erected by our trading partners.

Recommendation 7

The non-government members of the Taskforce recommend that the Commonwealth Government consider the following options to manage transitions of displaced workers including:

- 1.** The development of a 'skills training allowance' scheme to support displaced workers during a period of structured retraining before losing their jobs.
- 2.** The development of specific skills and job retraining programs in conjunction with key stakeholders for a particular industry facing structural adjustment.
- 3.** Skills mapping of workers' skills against labour market opportunities, including opportunities elsewhere in the economy.
- 4.** Relocation support to take up alternative employment if that is desired.
- 5.** Early retirement, with government contributions to superannuation, for those within three years of retirement age.
- 6.** The option of developing a business plan, which must pass normal finance hurdles, would be able to access a loan guarantee (which could not be used for salaries).

Recommendation 8

The non-government members of the Taskforce recommend that the Commonwealth Government engage with all levels of government through COAG in a strategy to increase investment in the built environment, social and community infrastructure and liveability in mining communities.

Recommendation 9

The non-government members of the Taskforce recommend a coordinated information campaign between the Commonwealth, States and Territories, on small business and industry advisory services and programs available to assist manufacturing firms (and firms from other sectors) with the transitions associated with succession planning and generational change.

Economy-wide measures

Recommendation 10

The non-government members of the Taskforce recommend that the Commonwealth Government commit to early and true consultation with industry in the development of all regulation, including assessing the regulatory impact on ancillary industries not just those companies or firms directly impacted.

Recommendation 11

The non-government members of the Taskforce recommend that the Commonwealth Government examine the regulatory arrangements related to the following industries and activities:

1. Medical devices and pharmaceuticals.
2. Product approval processes, in particular to better align approval and conformity certification processes in Australia with those required in major export markets.
3. Operation of state level environmental laws and their interaction with Commonwealth legislation.

Recommendation 12

The non-government members of the Taskforce recommend that governments examine ways to reduce tax burdens on business and, in particular, reduce effective rates of tax on business income. The non-government members of the Taskforce also recommend that the Commonwealth Government monitor the initial operation of the new R&D tax incentive arrangements and be ready to remedy any unintended consequences of the dominant purpose test and feedstock provisions and to reduce excess compliance burdens. It is also recommended that additional funding for the 2012-2013 year be provided to Commercialisation Australia. This will ensure applications (around 40 per cent of which are manufacturing related) that pass all the merit hurdles are not rejected because of a short fall of funds during the next 12 months.

Recommendation 13

The non-government members of the Taskforce recommend that the Commonwealth Government ensure manufacturing-specific initiatives are funded through its Digital Enterprise program, and that Enterprise Connect is equipped to provide knowledge and advice on the implications of broadband for the business models of its clients. The upgrading of the ICT capabilities of Australian manufacturing SMEs is particularly important in meeting the productivity and competitiveness challenge.

Recommendation 14

The non-government members of the Taskforce recommend that governments should:

1. Encourage investment in the nation's transport infrastructure and utilise the appropriate economic instruments for doing so. Where circumstances warrant public private partnerships in infrastructure provision this should be done.
2. Address and remedy inconsistent legislation and regulations covering road and rail infrastructure at local, state and national levels.
3. The Commonwealth Government should provide a clear, concise statement on strategic directions for multi-modal transport infrastructure and the future development of our cities and regions. This would enable manufacturing firms to plan for the future with greater certainty.

Recommendation 15

Australian manufacturers are increasingly finding that they are competing against products that do not conform to regulatory requirements and do not meet standards to which domestic businesses adhere. The non-government members of the Taskforce recommend that the Commonwealth Government:

1. Develop an approach to conformity marking along the lines of Europe's CE Marking.
2. Evaluate, in consultation with industry, the effectiveness of existing regulators with responsibilities for product assessment with a view to improving effectiveness of conformity assessment.
3. Enter a dialogue with the ACCC and, through the State and Territory Governments, Offices of Fair Trading, to increase the priority given to addressing misleading claims of conformity with regulation and voluntary standards.

Recommendation 16

With regard to energy policies, the non-government members of the Taskforce recommend that the Commonwealth Government:

1. Ensure that the Australian greenhouse gas reduction scheme links to overseas schemes.
2. Rationalise the Commonwealth/State mix of greenhouse schemes that have overlapping aims and coverage.
3. Undertake energy market reform to ensure the market and its regulation operate as efficiently as possible, delivering lower prices to energy users while encouraging investment in low-cost energy.

Recommendation 17

The non-government members of the Taskforce recommend continued funding for the \$1 billion Clean Energy Technology Investment Program, streamlining compliance requirements, and ensuring that SMEs have the support and information required for accessing the program. In addition, and in a practical way AusIndustry should provide information sourced from program participants on where they are purchasing their more energy efficient capital equipment, whether Australian suppliers are competitive and whether some of the best Australian suppliers are also looking for and winning international business opportunities.

Recommendation 18

The non-government members of the Taskforce note the importance of energy-intensive businesses, that the impacts of the carbon price need to be ameliorated given the current competitive environment, and recommend that the Jobs and Competitiveness program be monitored for impact and refined as needed to ensure the global competitiveness for those industries during their transition is maintained.

Recommendation 19

The non-government members of the Taskforce recommend that the Commonwealth Government:

1. Commission an independent investigation of a Sovereign Wealth Fund for Australia.
2. Initiate a dialogue on what it actually means to be 'downturn ready' in the years ahead, potentially as part of the proposed Australian Economic Dialogue proposed in the report.

Recommendation 20

The non-government members of the Taskforce recommend that in order to better leverage value chain opportunities:

1. Large firms considering re-investment priorities be encouraged to identify value chain opportunities from Australia.
2. That the Commonwealth Government support supply chain enhancement initiatives in its trade and industry policies.
3. That Austrade undertake work to better understand global supply chain opportunities in Asian markets for a range of prospective manufacturing industries.

Smarter networks

Recommendation 21

The non-government members of the Taskforce recommend the establishment of a limited number of Smarter Australia Precincts. These would involve large-scale facilities that bring together a critical mass of capabilities and industries – across businesses, researchers, end users, students and government – to share resources, support knowledge spill overs and diffusion, and strengthen networks.

Recommendation 22

The non-government members of the Taskforce recommend that smaller scale innovation hubs, based on niche specialisations, could be based in major regional centres, and based on existing strengths of these regional centres.

Recommendation 23

The non-government members of the Taskforce recommend that the Commonwealth Government consider the establishment of a Strategic Investment Facility:

1. To co-invest in economically significant activities that would not otherwise occur.
2. Requiring that beneficiaries of co-investment be active participants in the supply chain enhancement strategies that all precincts would be required to publish.

Recommendation 24

The non-government members of the Taskforce recommend that a formal and ongoing dialogue should be established between industry and the research and education sector.

In order to address deficiencies in current industry-research links and the lack of incentive in the research sector for collaborating with the manufacturing industry a research impact measure tied to funding should be introduced. In doing this consideration should be given to diverting a modest proportion of current research funding streams into a third-stream of funding aimed explicitly at knowledge exchange between users and the research sector, as has successfully been done in the United Kingdom.

Recommendation 25

The non-government members of the Taskforce recommend that the Commonwealth Government commission the development of a Smarter Australia Network, an online platform that would be a digital nervous system of the national innovation system,

improve knowledge flows within and across industries and regions, and systemically create new spaces for collaboration.

Recommendation 26

The non-government members of the Taskforce recommend that a National Food Innovation Precinct and Network be progressed as the pathfinder project for the wider precincts and network proposal.

To ensure competitiveness is not undermined, the non-government members of the Taskforce recommend that the Commonwealth Government ensure that competition settings permit the development of scale and scope needed for success in larger Asian markets and that regulatory standards be reviewed.

The non-government members of the Taskforce recommend that this be done by the Commonwealth Government in a manner that does not diminish Australia's highly reputable regulatory standards around product labelling, marketing and ingredients.

Recommendation 27

The non-government members of the Taskforce recommend that key manufacturing initiatives to support a core recommendation of this report regarding applied knowledge be progressed as follows:

A new committee be established that would be chaired by a senior business leader with a Deputy Chair being an eminent person from the private sector with expertise to help undertake a two stage due diligence process of the funding and activities of those entities (CSIRO, Universities, CRC's ARC etc.) with relevant connections to applied knowledge application and dissemination in Australia.

This review committee would, among other things, test a Taskforce view that there are deficiencies in the manufacturing innovation system in Australia that need to be addressed. The review process would report on:

- 1.** Who does what and where are the key entities located?
- 2.** Who are their clients, both at Commonwealth, State and Territory level and within the private sector, and what are their engagement strategies with their clients and how successful have these been?
- 3.** What is the current balance of support for science based R&D versus production technology adoption and adaption, and non-technological knowledge adoption and adaption (eg. design business model change)?

4. What is the most effective contribution the Manufacturing Technology Innovation Centre or Network can make and what role should be played by agencies such as QMI and Enterprise Connect?

5. Whether current funding of manufacturing innovation is sufficiently strategic to ensure the government and the sector are generating the benefits they should?

6. How and whether The Manufacturing Technology Innovation Centre (MTIC) or Network could be a Smarter Australia Precinct (though potentially involving multiple sites given the tendency for manufacturing subsectors to cluster in different locations), bringing together globally and nationally relevant manufacturing technology and expertise, with an innovation agenda defined by the needs of industry?

7. How and whether the ARC's Industrial Transformation Research Hubs would form part of a Manufacturing and Technology Innovation Network, operating as applied knowledge centres that connect with the MTIC, Enterprise Connect, QMI and other agencies?

The non-government members note that other industry sectors have functional, strategic innovation systems (mining, agriculture) underpinned by effective interaction between demand and supply forces. We note that other countries (eg. Germany) have clearly defined roles and responsibilities within their manufacturing innovation systems and that these systems appear to work well.

Manufacturing deserves to have the same both for its own competitive future, and also to ensure the taxpayer receives full benefit for their investments.

The non-government members of the Taskforce stress the need to consider the range of manufacturing initiatives as one package, and to do so from the perspective of what can support businesses to collaborate and innovate.

Finally, we note that our proposal for an independent review rather than an in-house review by the Department will take additional time. The non-government members of the Taskforce stress the need to get it done right rather than get it done fast. Independent expert due diligence is too important to compromise. And the institutional power of those occupying spaces (or silos as some might say) in the national innovation system is such that the review we are proposing is essential. As one Taskforce business leader who has been around Australia's science and research agencies for a generation put it 'we will only get one shot at this. Let's do it right.'

Recommendation 28

The non-government members of the Taskforce recommend that design be seen as a ubiquitous capability for innovation, and proposes that the Commonwealth Government commission an independent panel to advise on the changes needed to maximise the potential of design thinking on innovation in Australia.

Recommendation 29

The non-government members of the Taskforce also recommend that the design thinking approach form significant elements of the curriculum of the proposed Australian Leadership Institute.

Smarter SMEs

Recommendation 30

The non-government members of the Taskforce recommend that:

1. Enterprise Connect be upgraded, its funding to support manufacturing firms be significantly increased and its relationships and connections with other agencies be formalised. This will help Enterprise Connect exercise greater leverage and capacity in assisting manufacturing firms to meet the competitiveness and productivity challenges they face. Specifically Enterprise Connect should be configured as an entity with similar or greater management and operational autonomy as that enjoyed by Austrade and Commercialisation Australia.

2. Enterprise Connect be the 'one front door' for SME support, with a series of partnership agreements with other agencies to ensure that businesses receive appropriate support.

To achieve this, the government should carefully consider the option of merging or more closely integrating the operations of Enterprise Connect and ICNL Ltd. The Minister for Industry and Innovation and the Minister for Trade and Competitiveness should play a more active role in the prioritisation of joint activity between Austrade, Enterprise Connect and the Industry Capability network.

Partnership payments through COAG is one option for drawing the State based ICN's into a more collaborative national network. Alternatively existing Commonwealth resources such as SAMP grants, location and utilisation of supply advocates and national sector managers could form the basis for MOU's between individual States and the Commonwealth for a truly national industry capability network.

The objective of these proposed changes is to ensure that the existing suite of activities within Enterprise Connect that support manufacturing activities are enhanced and attract additional resources so that it can help drive the systematic upgrading of manufacturing SME capability and management skills, better supply chain links and performance. This includes segmenting its existing client base and, in partnership with other agencies, identifying and supporting high growth high performance firms, a theme that has been central to this report.

Better interaction between Enterprise Connect, its manufacturing clients and the research sector is essential. As manufacturing firms upgrade their capabilities, they need to plug into different types and sources of assistance at different times. They face real transaction costs, so Enterprise Connect and related services need to continue to ensure they address these transaction costs. The Taskforce strongly believes that government support needs to be joined up and client focused, not transaction/KPI focused. When it is joined up and client focused, it can deliver enormous value to SMEs at very little cost.

Recommendation 31

The non-government members of the Taskforce recommend the establishment of Innovation Vouchers to encourage researchers to directly assist SMEs in tackling their practical innovation challenges, increase the engagement between knowledge providers and SMEs, and raise the SMEs productive and innovative capacity.

Recommendation 32

The non-government members of the Taskforce recommend that the Commonwealth Government introduce a whole-of-government Small Business Innovation Research (SBIR) or Smart SMEs style procurement initiative and, through COAG, actively encourage state governments to develop their own versions of such programs.

Recommendation 33

The non-government members of the Taskforce recommend that the Commonwealth Government commission an independent review into mechanisms to expand access to finance for SMEs. This would consider existing capital market failures, the applicability of loan guarantee schemes and the scope for new entrants to the SME finance market.

Smarter workplaces

Recommendation 34

The non-government members of the Taskforce recommend the establishment of a collaborative online forum that can showcase good practice in high performing workplaces, with this being a focus for a wider national conversation on high performing workplaces as a new element of economic policy.

Recommendation 35

The non-government members of the Taskforce recommend the expansion of the Researchers in Business program as a first step to overcome the cultural barriers between research and industry.

Recommendation 36

The non-government members of the Taskforce commit their organisations to:

1. Developing a broader and deeper knowledge of what firms and workers need to significantly transform the productive performance of their businesses and workplaces, and how the change process at the level of the firm and work place can be better managed.
2. Transferring that knowledge into new content and approaches in delivering education and training material for members through internal union and employer association programs, and through new alliances with external providers with expertise to add value to the training/education effort.
3. Developing high level capabilities internally and through new alliances with specialist external providers to assist members in workforce development initiatives and to improve the productive performance of firms through an agenda for developing high performance workplaces.
4. Embedding a new culture in employer and union organisations that prioritises these activities regardless of the changing political landscape.

Recommendation 37

The non-government members of the Taskforce recommend that, to underpin the important leadership dialogue required to implement this report, the Commonwealth Government support a national conversation on high performance workplaces, with the next steps in this to involve:

1. Support for a forum to enable the success stories of workplace practice to be shared more widely.
2. A significant expansion of the Researchers in Business program, to enhance the knowledge flows between researchers and industry, and enhance mutual understanding.
3. Support for improved data collection (such as was provided through the Australian Workplace

Industrial Relations Surveys of the 1990s), with a focus on workplaces and their performance to enable practice to evolve with evidence.

4. Consideration to the role of workplace intermediaries, including industry associations and unions, in providing practical advice to those firms seeking it with proven strategies to lift the performance of workplaces.

Recommendation 38

The non-government members of the Taskforce recommend that the Commonwealth Government support an annual, non-partisan Australian Economic Dialogue to provide a forum for stakeholders and the community to better understand and consider the challenges of economic change.

Recommendation 39

The non-government members of the Taskforce recommend that the Commonwealth Government introduce an Australian Leadership Institute, which would supplement research, business, and design and policy schools to build national leadership capabilities on various levels.

Recommendation 40

The non-government members of the Taskforce in partnership with the Commonwealth will be establishing a Manufacturers Leaders Group (MLG) to work on issues such as the perceptions of manufacturing; to hold ongoing discussions about the environment the industry faces and what needs to be considered to build better firms and workplaces; to monitor the development of a manufacturing strategy and to conduct further research into the future of the manufacturing industry. It is recommended that the Commonwealth provide seed funding for the MLG research program for 2013 and 2014 after which the research funding would be reviewed.

Recommendation 41

The non-government members of the Taskforce recommend that the government take action to ensure Australian industry has access to natural gas for the domestic market at fair and competitive prices. There is merit in the position put forward by Andrew Liveris the CEO of Dow Chemicals and in Appendix Three of this report from Insight Economics. Accordingly the Commonwealth should:

1. Ask the ACCC to undertake an investigation of competition in the upstream supply of gas in Australia.
2. Ask the Productivity Commission to undertake an inquiry into lease provisions and the supply of gas to the domestic market.

APPENDICES

Attached are four appendices of supporting material for the Report of the non-government members of the Taskforce.

APPENDIX ONE

Short term issues relating to Australia's anti-dumping regime and Australian Industry Participation (AIP) in both government procurement and private sector projects.

This appendix was prepared by the non-government members of the Taskforce and covers material tabled at the May 25 Taskforce meeting and expands on that section of the report dealing with Australian Industry Participation and Anti-dumping.

APPENDIX TWO

Price and availability of natural gas for the domestic market

This appendix was prepared by Insight Economics at the request of the non-government members of the Taskforce. It canvasses the issues about the supply and price of natural gas in Australia.

APPENDIX THREE

Policy observations

This appendix was prepared by Insight Economics. It is the final chapter of their report commissioned by the Taskforce examining the capital stock of Australia's manufacturing sector. The policy observations concern the terms and conditions under which support for manufacturing investment might be provided.

APPENDIX FOUR

The importance of SME self help initiatives and leadership training for improving the productivity and competitiveness of Australian manufacturers

This appendix provides case studies of the High Performance Consortium initiative amongst a small group of Victorian manufacturing firms as well as a summary of the Leadership 21 management training program.

APPENDIX ONE

Short term issues relating to Australia's anti-dumping regime and Australian Industry Participation (AIP) in both government procurement and private sector projects

A central theme of this report is the importance of short term measures to address the cyclical pressures that many firms and sub sectors of Australian manufacturing are confronting. Such an approach must also recognise the tough global trading environment Australian manufacturers are faced with and some of the predatory practices that are being pursued by other nations and firms.

These current market pressures can be addressed in part with a more comprehensive government approach to Australian Industry Participation (AIP) both in terms of government procurement and AIP in private sector projects and tenders across the country (particularly the \$450 billion pipeline of mining investment). This can help win business that would otherwise go offshore. This approach needs to be backed up by ensuring Australia's anti-dumping arrangements are up to the task. Both these measures (AIP and anti-dumping) can make a difference by reducing the risk of loss of jobs and preserving core manufacturing capabilities in the current environment.⁹⁴

Improve anti-dumping arrangements

As the non-government members of the Taskforce made clear at the May 25 Taskforce meeting, dumping goods into Australian markets can have a significant impact on local manufacturing viability.

Policies should ensure:

- Continued operation of the International Trade Remedies Forum and where appropriate continued legislative change.
- The creation of an Anti-dumping Agency, while not covered in our May 25 discussions can be consistent with implementing what needs to be done.
- Appropriate resourcing for ongoing operations and strike forces against dumping within Customs.
- Tough anti-dumping measures need to be backed up by a more systematic and comprehensive approach to negotiations aimed at removing non-tariff barriers erected by our trading partners.

The dumping of illegally priced goods into Australian markets is having a destructive effect on the viability

of some Australian manufacturing firms. Many of the goods that are dumped in Australia originate from 'sanctuary markets' in countries that are notoriously opaque in terms of subsidies and advantages provided to their exporting manufacturing firms. This unfair assistance includes the granting of advantages that cannot possibly be considered legitimate 'comparative cost advantages' in a rules based global trading system. Furthermore many of these firms are either state owned or have a quasi-state ownership, further complicating the nature of these unfair advantages and their effective identification.

In Australia glass, aluminium, timber products, pulp and paper, TCF and steel markets are being subject to dumping, as well as some firms in other sectors.

1. Legislative steps

The non-government members support the efforts the Federal Government is taking by implementing the 'streamlining' reforms to the anti-dumping regime, and considers this a good first step in combating the illegal practice of dumping.

Given that trade and market behaviour of dumping firms is constantly evolving, the government cannot assume that the task of combating and curtailing dumping is complete or will be at the conclusion of its legislative agenda. It is expected that, as with any legislative regime seeking to curb illegal behaviour, this will be an ongoing process of reform requiring further consultation with industry and unions.

In overcoming the negative effect of dumping, manufacturers are identifying the need for further reform in the following areas:

- Administrative practices including ongoing improvement of the culture within agencies tasked to detect and discipline dumping.
- Agencies are adequately resourced and mandated to cooperate with one another in anti-dumping investigations.
- There is increased transparency in anti-dumping processes.
- There are revised methodologies for determination of normal values and export prices.

- There is an improved public record.
- There is an improved reliability, transparency and consistency of statistics.
- There is change in the usage of subject matter experts.
- And that other issues currently being considered by the International Trade Remedies Forum are adequately addressed.

A priority needing greater attention is the development of effective mechanisms to deal with the non-market activities that prevail in key industries in China and elsewhere (noting that Australia has ceded the right to consider China as a non-market economy for anti-dumping purposes).

2. Commonwealth Anti-Dumping Agency

The non-government members note the announcement of a feasibility study into a Commonwealth Anti-Dumping agency by former Victorian Premier John Brumby.

The non-government members are supportive of this study and note that any Commonwealth Anti-Dumping agency should:

- Be highly resourced with Commonwealth funding and expertise.
- Have a broad remit of powers and cross-government scope for the purposes of dealing with breaches of trade.

3. Operations and strike forces

The non-government members of the Taskforce advocate a continuation of the International Trade Remedies Forum (ITRF) which brings together government, business and employee representatives to discuss issues relevant in the dumping space. The ITRF will be valuable in ensuring that the new regime is effectively operating, identifying where it has failed to achieve its tasks, and also identifying further areas for improvement, including current issues cited above.

The success of Operation Bluenet in identifying compliance issues in the anti-dumping space is important. The success of such high profile investigations should not be solely measured in 'dollars and cents' in terms of cargo identified and duties and taxes captured – as important as those are – but also in the general and specific deterrence that they provide for other would be dumpers. Penalties for deliberate and negligent circumvention of trade controls detected need to be increased to complement increased compliance monitoring as an

effective deterrent. Such specific bodies and operations are often utilised with great success in areas of public safety and crackdowns on criminal behaviour.

There is a case for the expansion of 'Bluenet' type operations and strike forces that target specific industries, importers or products. This approach should also be extended beyond compliance and into circumvention measures and should have a focus on ensuring freight and goods are thoroughly and adequately inspected. The creation of a specific operation to look into the dumping of aluminium extrusions should be considered.

Any operation should source information from public sources, industry as well as intelligence from other agencies that have relevant information on potential trade violations. It would be expected such operations would be appropriately resourced with staff and finances.

Investigations could be conducted in a high profile manner, or more covertly depending on whether a specific or general deterrence outcome was being sought. Both approaches can be used with the choice at the time depending on the degree of intelligence and the nature of the investigation.

Activate a comprehensive Australian Industry Participation policy now for both government procurement and private sector projects

As pointed out by the non-government members of the Taskforce on May 25, a significant opportunity to get work into firms right now is in projects and tenders involving government procurement and in private sector project work. This includes the \$450 billion pipeline of resource sector investment and capital works.

Many firms currently are suffering from a lack of demand due to the loss of competitiveness resulting from the terms of trade driven currency as well as sluggish domestic demand in non-resource related sectors.

With appropriate short term measures that boost demand, firms can adapt to cyclical fluctuations thereby allowing firms to position themselves for longer-term supply side competitiveness improvements.

To ensure the benefits from 'full, fair and reasonable access' materialise, there will need to be greater rigour and transparency applied to the issue of procurement.

Early engagement has been shown to be vital in winning work on major resource projects as specifications and other logistical decisions are often

made at a bank feasibility or Environmental Impact Statement stage.

Australian Industry Participation Plans should be formulated as early as possible, with proponents providing clear indications of engagement with local suppliers. Proponents should provide detailed expectations of the levels of local content to be used in the project, with a breakdown of percentages in classes of materials and goods. Such detail will provide greater accuracy for the purposes of review and audit as to the successful efforts of that proponent in providing full, fair and reasonable access for Australian local manufacturers.

In part this will involve project developers working with the Industry Capability Network, AusIndustry and others to ensure that a careful assessment is made of which key contracts include contestable items (between domestic producers and importers), and ensuring that packages bid for this work are appropriately packaged to ensure 'full, fair and reasonable' opportunity.

In some cases (particularly where firms are getting access to duty free imports through mechanisms such as the enhanced project by law scheme) an independent review or audit of undertakings will be required to ensure compliance.

It is also the case that standards should not be specified in a way that unreasonably utilises foreign competitor specifications thus limiting the access of Australian suppliers. The industry supply advocates, national sector managers, Commonwealth and State Governments need to harness their combined efforts in this challenging environment to ensure that the approach described above is a reality when contracts are tendered.

The non-government members of the Taskforce see this approach to AIP applying as much too specific manufacturing or mining projects as we do to infrastructure projects in regional centres. These infrastructure projects can also help meet the cyclical pressures and help boost short-term demand immediately.⁹⁵

That is why this report proposes that COAG establish a program to engage all levels of government to increase investment in the built environment, social and community infrastructure and liveability in mining communities. This is to ensure that the mining boom leaves a lasting legacy for these towns, as was the case with the diversified economic and social legacy left for gold rush communities such as Bendigo, Ballarat, Gympie and Bathurst. This program should ensure that there is full, fair and reasonable access

to local suppliers including of manufactured building products, fit out, labour and related services, to better spread the benefits of the boom throughout manufacturing and the broader economy.

The non-government members of the Taskforce are also aware that there is much that can be done through government procurement right now.

For example:

1. While AIP arrangements apply to Commonwealth contracts over \$20 million it is readily acknowledged by those involved that resources required to promote improvements have been in short supply for the early stage of the new AIPP regime. As a result they have not provided sufficient access to demand opportunities available right now. This can be improved.

2. In some cases, arrangements need to be tailored to the circumstances of individual industries. For example in the case of TCF it is more important to focus on a specific set of tenders and arrangements for those tenders as opposed to the traditional AIP focus on projects. In addition the \$20 million threshold is inappropriate for maximising the opportunities in TCF for supplying the government market given the small batch size of contracts. Specific measures for TCF SME's (broadly defined) could include a set aside arrangement for accessing certain contracts, early access to the SBIR scheme, and designation as an industry where the \$20 million threshold will not apply. These measures warrant immediate consideration by the Commonwealth.

3. At the State level similar opportunities to promote AIP are available.

4. The re-negotiation of the Commonwealth-State National Framework agreement for Australian Industry Participation is of considerable strategic importance to Australian manufacturing in the medium to longer term. The negotiations should provide a better way of connecting Austrade, Enterprise Connect and the ICN network to help industry win opportunities at home and abroad. But in the short term it must be a vehicle for action to focus the combined purchasing power of all levels of government on the cyclical pressures facing many parts of industry.

5. Similarly the proposal in this report for special procurement arrangements for SME's through an SBIR program could be fast tracked in key agencies at the State and Commonwealth level to ensure innovative manufacturing SME's survive the current drought many face for orders.

APPENDIX TWO

Price and availability of natural gas for the domestic market

In a situation where Australian manufacturers are struggling to compete in international and domestic markets because of the high dollar, they are also losing a major advantage they once enjoyed. For many years, energy-intensive manufacturing operations have experienced a significant benefit relative to competitors in other developed economies in terms of relatively low electricity and gas prices. If there is little that can be done in regard to electricity prices, which have increased due to the need for significant new investment in transmission and distribution networks as well as because of measures to curb carbon emissions, there may be more scope for policy action in regard to gas prices.

Domestic gas prices and the LNG price

In recent years, natural gas prices have increased from \$2.50 to around \$8.00 per gigajoule (GJ) in Western Australia (WA), with some recent contracts reported to be up to \$12/GJ. In eastern Australia, the price has increased from about \$3.50 to \$6/GJ in the last few years, with an expectation of further rises in the future, perhaps taking the price as high as \$9.00.

The reason why Domgas prices were relatively low in the past was that gas was plentiful and the price could reasonably be related to the cost of production while still providing a satisfactory commercial return. The costs of producing Domgas have increased in the last few years, but not by enough to justify such large price increases. According to the Domgas Alliance, for example, Woodside's so-called lifting costs per GJ in WA increased from around 31 cents in 2005, when the market price was \$2.50, to 66 cents in 2011, by which time the price had increased to \$8.00.⁹⁶

The steep rise in Domgas prices, therefore, has very little to do with increased costs of production.

Instead it is a consequence of the burgeoning LNG export industry. All the major companies that produce gas for the Australian market are now engaged in the export of LNG, either currently or prospectively. Reasonably enough from the perspective of their shareholders, they have a policy of charging a similar price for gas on the domestic market (Domgas) as they receive, netted back, from the sale of LNG on global markets. This occurred first in WA, where there was an existing and expanding LNG industry, and is now occurring in the east, where an LNG export industry is developing rapidly.

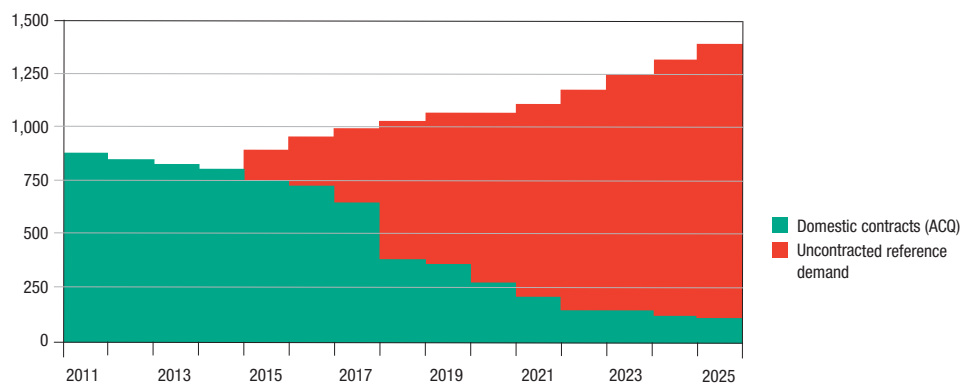
Domestic gas availability

As well as price issues, there are also concerns around the future availability of gas for the domestic market, particularly in the east. According to Beach Energy, around 80 per cent of current and projected gas supplies in eastern Australia are now 'locked up' by the oil majors for the LNG export industry.⁹⁷ Some indications of the future supply/demand situation are shown in Figure 1.

In a broader context, there should be no shortage of gas in Australia. Relative to our domestic market, Australia's gas reserves are enormous and, as new technologies are developed, they are projected to grow very substantially. A recent report by Geoscience Australia estimates that 'Australia's combined identified gas resources are of the order of 431,706 PJ (392 tcf). This is equal to around 184 years of gas at current production rates.'⁹⁸ Unlike the US, however, Australia has yet to develop what may be very extensive reserves of shale gas and tight gas. In his address to the APPEA conference in May 2012, the Energy Minister suggested that future shale gas discoveries could double Australia's total gas reserves.

APPENDIX FIGURE 1
DOMESTIC GAS DEMAND AND SUPPLY PROJECTIONS
Eastern Australia (PJ)

Source: Beach Energy Limited (2012), Presentation to Resource and Energy Symposium, Broken Hill, May, page 6.



Implications for user industries

This situation has serious implications for a number of industries in Australia that traditionally have traded off their advantage in being able to access supplies of competitively priced gas. Such industries include alumina, ammonium nitrate and petrochemicals. This is particularly important in the context of an ongoing policy objective over the years of adding more value in Australia to our natural resources. In a broader sense, it has also been evident in recent years that the strategies of the major mining companies are less likely than before to incorporate investment in new resource processing operations in Australia.

The Domgas Alliance of eleven companies has identified some recent problems faced by gas users:

- Rio Tinto unable to secure long-term gas supply for its operations in Queensland.
- National Generators Forum reports that generators are unable to secure long-term gas contracts.
- Incitec Pivot reports that Domgas prices make it less attractive to invest in a \$700 million ammonia plant in Australia relative to the US.
- Cement Australia at Gladstone was unable to make the switch from coal to gas because of its inability to secure long-term gas supply.
- Alcoa suspends a major expansion of its Wagerup alumina refinery with uncertainty over gas supply a key factor.
- Burrup Fertilisers unable to secure competitively-priced gas from the Gorgon project.
- ERM Power and Griffin unable to secure gas for proposed CCGT developments.
- DBP downsizes an expansion of the Dampier to Bunbury Pipeline as potential users were unable to secure competitive gas supplies.
- Coogee Chemicals reports that current Domgas prices make investment in new downstream processing uneconomic.
- High gas prices force Adelaide Brighton to switch to coal.
- Wesfarmers Chemicals reports that high gas prices make it uneconomic to expand ammonia production or invest in new value-adding chemical processing.

There are also very serious implications in terms of climate change policy. It has been generally understood that an initial step in the long-term goal of decarbonising Australia's electricity supplies would be a switch from coal as the main fuel for power generation to natural gas (When combusted, gas exhibits about half the carbon footprint of black coal).

Until recently, in eastern Australia, it would have required a carbon price of only around \$20/tonne CO₂ to make combined cycle gas turbines (CCGT) competitive with coal for base load generation. The cost of electricity produced by CCGT plant, however, is highly sensitive to the fuel price. Recent estimates suggest that, with a gas price per GJ of \$5, a carbon price of \$50/ tonne CO₂ would be required for CCGT to be competitive with black coal generation, while at \$7.00 the carbon price required would be up to \$90.00.⁹⁹

Australia's gas market and policy in a global context

There is no such thing as a global gas price. Conceptually, there should be a global price for LNG, although in fact this price can vary between markets according to supply/demand conditions in that market. The main reason why the netback price of gas destined for export LNG markets is high in Australia is because the markets in which the LNG is sold are energy-poor. In these energy-poor markets, both restricted supply and the need to access gas for use in certain applications means that customers are willing to pay higher prices for the resource.

Because the Australian Domgas price has been coupled to the LNG price, gas prices in our domestic market are rising at a time when gas prices in many other economies are falling significantly. This is due to an increase in gas supplies from sources that were not technically and commercially feasible to exploit until recently. The supply situation has been transformed in the US, for example, partly (as in Australia) by the development of coal seam gas (CSG), but more importantly by rapidly increasing supplies of shale gas and tight gas. According to the International Energy Agency, the addition of so-called unconventional gas to traditional gas resources has increased global gas reserves from 120 years of production at current rates to 250 years supply.¹⁰⁰

In the US domestic market, the effect of this has been to increase the supply of gas and reduce the price. The Henry-Hub benchmark price has fallen from a high of \$14/GJ to around \$4.50 in 2009 and now to about \$2.50 in June 2012. Yet, despite significant discoveries of CSG, the Australian price has gone precisely in the opposite direction.

According to the Domgas Alliance, Australia is the only country that allows the export of gas with no priority being given to local supply and is the only gas-exporting country experiencing sharply increasing domestic gas prices.¹⁰¹ If there were a strong economic argument for aligning the domestic gas prices with the export LNG price, it could be

expected that the governments of market economies like the US and Canada would also follow the Australian approach. Yet, this is not the case:

- In the US, approval of a new LNG export industry has been conditional on gas producers prioritising the domestic economy and ensuring affordable prices.
- In Canada, which is a major gas exporter, export permits and price tests are required to ensure that domestic customers are not disadvantaged in any way by the export of gas.¹⁰²

Policy implications

The above discussion suggests that other gas exporting countries see no reason to link their domestic gas prices to those that apply in energy-poor countries like China and Japan to which we export gas. Australia is not energy-poor, with massive reserves of coal, uranium and natural gas, and with some additional advantages in renewable energy.

The situation that applies in the coal industry, for example, does not suggest the necessity of a close linkage between export and domestic prices. Some coal fields are not suited for exports and are available to provide coal for the domestic market at a price that predominantly reflects the cost of production. It is difficult to see why the same argument should not apply to natural gas. After all, there is no shortage of gas reserves in Australia. As stated by Geoscience Australia, ‘total identified gas resources are sufficient to enable expansion in Australia’s domestic and export production capacity’.¹⁰³ As with coal, some prospective gas fields are not suited to LNG production for export.

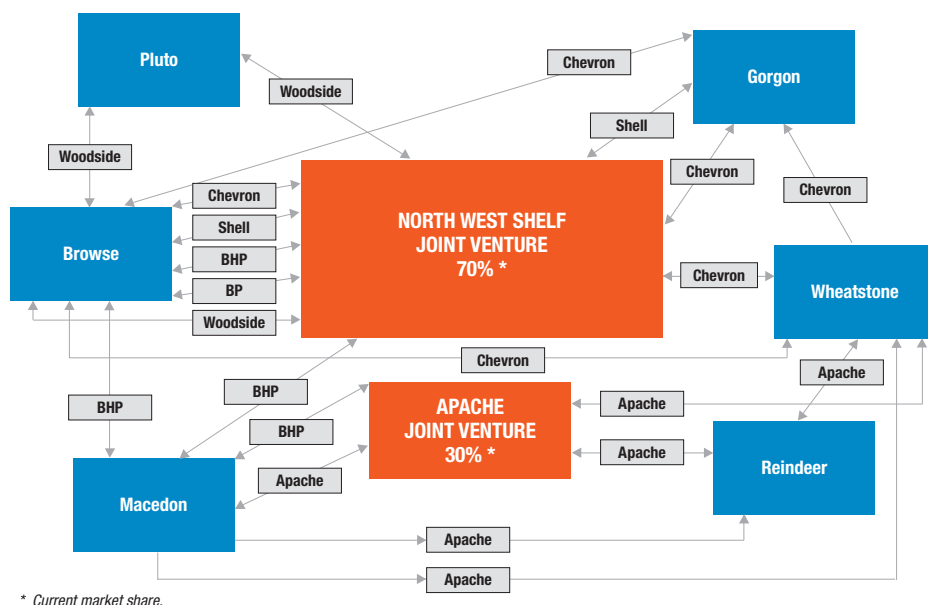
Australia’s gas reserves are owned by the Crown in the interest of the Australian community. The key question is whether it is in the best interests of the community for the owners of production leases to link the availability and price of the domestic gas supply to the export LNG market. On the one hand, maximising the gas price may provide the best returns to the owners of the resource. This is clearly the current view of Australian policy makers.

On the other hand, if a high proportion of the economic rents arising from high prices flow to overseas shareholders and local gas-using industries become non-viable, this may not be in the best interests of the community. It is possible that Australians generally would enjoy greater returns if sufficient supplies of gas were made to satisfy demand in both export and domestic markets at prices that reflect the different conditions in those markets. It is not a zero-sum game. The extent of our gas resources should allow export demand to be satisfied, at a relatively high price, and domestic gas demand to be met at a lower price that still offers a commercial return to the producer.

If the latter proposition is supported, what policy approaches could the government adopt so as to increase the availability and reduce the price of gas on the domestic market? One approach favoured by gas users is a reservation policy, by which 15 per cent of new gas developments would be reserved for the domestic market. This policy currently applies in Western Australia. It has some drawbacks, however. First of all, 15 per cent is a very arbitrary number. Secondly, and most importantly, the policy is silent on price. The reservation policy has done nothing to contain price increases in the Domgas market.

APPENDIX FIGURE 2
LINKAGES BETWEEN SUPPLIERS TO THE WESTERN AUSTRALIAN GAS MARKET

Source: Domgas Alliance (2012), *Australia’s Domestic Gas Security*, page 31.



* Current market share.

Where gas fields are developed primarily for the export market, like Pluto and Gorgon, it is not unreasonable for the developers to seek to sell the gas reserved for the domestic market at the export price.

Perhaps a better approach would be to accelerate the development of gas fields that can supply the domestic market. It is clear that Australia has no shortage of reserves of gas. In the context of climate change, however, natural gas is widely regarded as an interim fuel resource that will be superseded by low to zero emissions sources in the second half of this century. In that context, there may be no benefit in maximising returns through a slow exploitation of a resource that may last for 200 or 400 years if the asset is likely to become stranded within five or six decades. More rapid development may well be in the Australian community's best interests.

There are two aspects to this. First of all, on the supply side, the ability to earn significant economic rents by setting very high Domgas prices relative to the costs of production suggests a lack of competition in the domestic gas market. This is an issue raised by the Domgas Alliance of user industries, with

a specific focus on the WA market where there are significant relationships between competing suppliers as shown in Appendix Figure 2 on previous page.

Secondly, the ability of exploration leaseholders to reserve their gas for export markets down the track and postpone the development of those fields should be subject to considerable scrutiny. There is a strong case for a much greater level of enforcement of the 'use it or lose it' provisions. It is not clear that the best interests of the owners of the resource, the Australian community, are best served by this policy, which has the clear potential to reduce the availability of gas to the domestic market and increase its price. Australian Governments traditionally have been very reluctant to apply use it or lose it conditions.

It seems there is a strong case for these issues to be investigated further. We recommend that:

- The ACCC be asked to undertake an investigation of competition in the upstream supply of gas in Australia.
- The Productivity Commission be asked to undertake an inquiry into lease provisions and the supply of gas to the domestic market.

APPENDIX THREE

Policy observations

Under our terms of reference for this project, Insight Economics was required to provide some broad policy observations based on the implications of our analysis. In undertaking this element of the project we have not attempted to design policy measures in any detailed way. That is the task of government. Rather, we discuss various possible policy directions in a broad manner and, indeed, in some cases suggest that the issues concerned require further study before any definite conclusions can be drawn.

In making these policy observations, we acknowledge that the government has already taken a number of initiatives that will be of benefit to manufacturers. These include support for investment under the various Clean Energy Futures initiatives and the Clean Energy Finance Corporation, as well as very significant skills development programs.

The case for assistance to manufacturing

Our policy observations reflect our conclusions that it is difficult to argue for across-the-board assistance to the manufacturing sector on the grounds that its performance is suffering from the high Australian dollar. While the AUD can be expected to fall somewhat in the future, the best assumption for policy planning is that it will still remain high relative to the past. In addition, the decline of manufacturing relative to services in particular is a phenomenon common to most developed economies. Not only is there no point in seeking to firewall a large number of industries that will not be able to compete profitably for perhaps several years, but to do so would be unacceptably costly and would deny resources of labour, in particular, to other industries that can presently use them more productively.

That said, there may be a case for limited support on a more selective basis. As was suggested in Chapter 2 of this report, it could be inefficient to lose some companies that have been excellent performers if it is likely that the terms of trade will decline in the future from their current highs and such companies would then be competitive again. While in principle the market is the best determinant of the allocation of productive resources between different activities, in Australia's current circumstances the market is likely to operate on the basis of a shorter timeframe than is ideal. For example, the banks, particularly under present global wholesale financial market constraints, are unlikely to take a longer term view of

the prospects for a particular company's prospects on the basis of a projected future decline in the terms of trade. In this context, our interviews revealed that smaller and medium-sized manufacturing companies are finding it much more difficult to obtain debt finance these days than before the GFC.

This provides little confidence that 'leaving it to the market' is necessarily the best means of ensuring allocative efficiency in the circumstances where the terms of trade are currently high but can be expected to decline somewhat in the medium and longer term. To illustrate this statement, if the market were efficient in allocating labour and capital between various activities, it would be reasonable to expect some symmetry in the outcomes it produces. If that were the case, when international competitiveness declines, manufacturing companies may go out of business, but then when competitiveness improves it should reasonably be expected that the market would allow such activities to re-appear.

In practice, of course, this is most unlikely to eventuate. If the current surge in the terms of trade resulted in Australia losing, say, the car industry, aluminium smelting or parts of the pharmaceuticals industry, it is very difficult to imagine such activities re-emerging sometime in the future when the terms of trade decline. While this may be what simple market models may tell us should happen, it would not reflect the way in which transnational corporation allocate their global investment dollars. Australian competencies in many manufacturing activities have been developed over a long period of time and involve substantial sunk costs. In a high cost economy, it would almost certainly not be efficient to attempt to re-invent such competencies when the terms of trade fell. Rather, new investment would go to those other countries that had continued to build their manufacturing competencies while the sector in Australia was in decline.

Another difficulty with 'leaving it to the market' is that the market takes little account of adjustment costs. Despite the prevalence of a fly-in, fly-out labour force in new resource projects, such a system is unlikely to appeal to a large number of workers displaced from manufacturing activities.

The geographical reality is that a significant proportion of new jobs are being created in a different part of our vast continent to that where they are being lost. Of course, if this phenomenon were likely to

be permanent, then the adjustment burden may need to be accepted in full by the community. If the terms of trade are likely to fall in the future, however, the optimal level of adjustment required becomes a more difficult issue. This is particularly the case when companies that provide significant numbers of jobs in regional locations are threatened with closure.

Of course, the fact that the market may not work very well in allocating productive resources between industries efficiently for the longer term and fails to take adequate account of adjustment costs does not necessarily mean that governments are likely to perform any better. This is why any intervention should be relatively constrained and any assistance provided to companies should be based on strict criteria that would attempt to ensure that the support leads to better outcomes for the Australian community as a whole than would occur in the absence of intervention.

If these views are accepted, how should they be reflected in new policy initiatives in a situation where budgetary exigencies mean that the capacity to provide support is clearly constrained? On the basis that the government should not provide support to companies that would still be unable to compete under a high exchange rate, this suggests that assistance should only be provided to support far-reaching changes to a company's operations that would allow it to compete under the present difficult economic circumstances and then to become increasingly profitable and able to grow in the future as the terms of trade, and the real exchange rate, begin to decline.

Reflecting the implications of this discussion as well as the findings from our interviews, Insight Economics has identified four areas where policy action may be justified, namely:

- Providing support to companies for potentially game changing, strategic investments that would enable them to compete under present market conditions and that otherwise would not go ahead.
- Bringing on stream additional supplies of natural gas so that domestic gas (DOMGAS) prices are more competitive, thereby encouraging investment in both energy-intensive resource processing projects and low emissions, efficient electricity generation.
- Evaluation of defence industry policy, with the aim of increasing investment in capability by providing more certainty over future workload and greater promotion of defence exports.
- A measured increase in the resources available for the Enterprise Connect program and the encouragement of networking.

As well as these areas where more formal policy approaches may need to be developed, there also remains a role for an approach that does not involve new programs, regulation or legislation. This could loosely be characterised as 'jawboning' and it represents a way in which Ministers may seek to influence various important players in the Australian economy.

These are explored below.

Support for investment in strategic projects

Across the board investment incentives

In the course of our interviews, a number of companies proposed the introduction of general incentives for the manufacturing sector, such as accelerated depreciation or an investment allowance. One company proposed a lower rate of company income tax for manufacturing entities.

In our view, such an approach would be difficult to support. First of all, our analysis shows there is no evidence that the age of the manufacturing capital stock is a general problem, suggesting that overall it is difficult to argue that there has been significant under-investment. Secondly, it is very difficult to endorse blanket investment incentives for any sector in the middle of what is clearly a substantial investment boom in the Australian economy and when unemployment is currently around 5 per cent. Thirdly, such a broad based measure would not necessarily improve allocative efficiency; indeed, by discriminating broadly between sectors, it may well make the situation worse. Finally, it would not be an efficient use of scarce public resources since much of any such government assistance would go to support capital spending that would occur anyway in the absence of such assistance. To be sure, broad investment incentives may pull forward capital spending that otherwise would have occurred later. Yet, other than in a recession, this is also difficult to justify.

In administrative terms, accelerated depreciation would be difficult to implement on a discriminatory basis so that it applied only to manufacturing entities. Under Australia's tax law, specific depreciation rates vary according to the effective lives of the items of equipment, not the nature of the firms that purchase the equipment. It would be difficult, but probably not impossible, to amend the Act so that a particular item of equipment attracted a more favourable rate of depreciation if it were utilised by a manufacturer rather than a services or resources company. With tax being levied at the level of the enterprise as opposed to the establishment, however, the definition of a manufacturer may sometimes be blurred. In addition, in terms of the optics this would obviously create difficulties in a situation, for example, where

favourable treatment were accorded to a poorly-managed manufacturing company that invested in a certain item of equipment as opposed to an excellent services company that purchased the same item but received no support.

Designing a selective program

In principle, if it is to be provided at all, generally available assistance to industry is usually to be preferred to selective support. One approach to maximising the efficiency and effectiveness of an initiative to support investment would be to provide assistance that can be available, in principle, to any company but would only be provided to those projects that meet certain criteria that would be designed with the objective of maximising the social benefits of the assistance. By focussing the limited budget for assistance on selected projects, the support would be more likely to make a genuine difference while having the capacity to meet appropriate objectives in terms of community benefits.

Such an approach is likely to be criticised on the grounds that it involves 'picking winners'. If the criteria are designed appropriately, however, the approach may rather be characterised as 'backing winners' in terms of companies that can demonstrate a clear, game-changing strategy that has the potential to provide significant community benefits.

The theoretical basis for such a program follows from the discussion in Appendix Figure 3. Because the present low level of international competitiveness for manufacturing, driven by the terms of trade, is unlikely to be permanent, there is a case for sustaining key competencies and those excellent companies that are likely to be able to compete profitably and to grow in the future. While the assistance would be generally available in principle, however, relatively few firms are likely to qualify for it. Such support needs to be provided selectively on the basis of strict criteria designed to ensure that the intervention will provide outcomes that benefit the Australian community as a whole.

A second, more practical argument in favour of this approach is that, irrespective of whether or not such a program exists, it is almost inevitable that governments will provide selective support to firms anyway. As stated previously, every Australian government within living memory has followed such an approach from time to time. Under current circumstances, Insight Economics understands that the government has been swamped by requests for support by manufacturing companies faced with a substantial loss of competitiveness. By no means all of these companies can or should be assisted. The approach described here would at least establish a set of criteria that companies would need to satisfy before

assistance was provided as well as a budgetary cap on such assistance. A rigorous, strategic approach to providing investment support, based on the recommendations of an expert body, appears to us to be preferable to an ad hoc policy where political considerations and the 'squeaky wheel' principle may be at least as important as projected community benefits.

There is little rationale for governments to offer significant support to industry in the face of a loss of competitiveness if a major element in the problems a business faces is the quality of management. In these kinds of businesses, if government is to intervene, the appropriate policy response would be along the lines of the current Enterprise Connect program which offers extension services to SMEs.

In general, companies with a talented top management team and strong leadership tend to report:

- Up to date capital equipment.
- A strong investment program over the last decade.
- A high rate of R&D spending.
- Strong relationships with the labour force, including trade union representatives.
- They are actively seeking 'game changing' strategies to address the issue of poor international competitiveness.

Paradoxically, although such firms may be the ones that least need government support, at least in terms of survival, they may also be the ones that would offer the greatest social returns from such support, or the 'biggest bang for the buck'. Even excellent companies may need government support to deliver a 'turnaround' strategy. In terms of the last point above, for example, while these companies may be capable of devising the best strategy to enable them to ride through the high exchange rate, in a time of low profitability they may not be capable of funding it. This reflects the doubts, expressed in Appendix Figure 3, as to whether we can be confident that market forces alone will be able to deliver an efficient allocation of productive resources, particularly labour.

If support is to be given, it seems appropriate that it should have the objective of being transformational in terms of:

- Helping a business to turn around its operations in the face of a loss of competitiveness due to the high exchange rate.
- Providing benefits all along the firm's supply chain, particularly to SMEs.
- Establishing a commercially sustainable operation that has the potential to grow substantially in the medium to long term and create additional direct and indirect jobs.

A major challenge would be to design and apply a set of criteria that would ensure that the community derived value from its support of private sector capital expenditure. Perhaps the first criterion should be that the company would need to prove that, in the absence of support, the project would not occur. It is very difficult for government officials to assess such a proposition. Their professional experience, for example, is unlikely to provide them with the expertise to interrogate investment appraisals undertaken by well-resourced MNEs. It may well be that a body that included financial sector professionals would need to be established to make recommendations to Ministers on projects that deserved support.

A starting point in designing such criteria would be the conditions that applied to the former Strategic Investment Coordination (SIC) program, under which the government supported a number of major investment projects in the late 1990s to mid 2000s as shown in Appendix Figure 3. This program evolved from the 1997 Mortimer Report on industry assistance which, *inter alia*, recommended the establishment of a \$1 billion fund over five years to attract new technologies to Australia.¹⁰⁴

The SIC criteria should be reviewed in the light of experience, however. There is a body of opinion that the bulk of the assistance provided under the SIC program went to major resources projects that would have happened anyway or that were fundamentally non-viable. Support was offered to a Spaceport, for example, that never got off the ground. Rio Tinto's Hismelt project was commissioned with the aid of a \$125 million grant under the SIC program and was

first mothballed following the GFC and then abandoned in early 2011. There needs to be a greater emphasis on longer term viability, significant social benefits and evidence that the investment will be a 'game changer' rather than more of the same. It may also be more equitable to establish a much lower CAPEX threshold for such support.

In recent times, government has provided assistance to the automotive assembly industry to support strategic investments. The general rule of thumb appears to be that the level of assistance provided by government is not greater than 25 per cent of the total investment. In fact, the post-tax level of support is less than that because the assistance, as it filters through to the bottom line, is subject to tax. In addition, if the government support gives rise to additional net investment in the economy that would not otherwise have occurred, it may give rise to additional tax revenues down the track that offset the cost of the assistance. In any case, so as to ensure that the recipient of assistance has significant 'skin in the game', support could be provided in the ratio of \$1 government to \$3 company, following the recent precedent in the automotive industry.

Successful applicants under the SIC program received a grant (or, in exceptional circumstances, a loan), often paid over time as specified investment milestones were met. It is not clear that there was a budget for the program; indeed it seems that grants were made on an ad hoc basis following Cabinet approval. It may be more appropriate, under this proposal, to provide assistance by means of a tax rebate or investment allowance with an annual cap on the support.

**APPENDIX FIGURE 3
STRATEGIC INVESTMENT
COORDINATION
PROGRAM: CRITERIA**

Source: Invest Australia, Department of Industry, Technology and Resources, Canberra, 2003

Criterion 1	The investment would not be likely to occur in Australia without the incentive.
Criterion 2	The investment provides significant net economic benefits through: <ul style="list-style-type: none"> • a substantial increase in employment • substantial business investment • a significant boost to Australia's R&D capability • a significant benefit to, or investment by, other industries, either users or suppliers (cluster investment) • ensuring that it does not involve substitution of existing production capacity which would provide an unfair advantage over other competing projects.
Criterion 3	The investment complements Australia's areas of competitive advantage.
Criterion 4	The investment is viable in the long term without subsidy.
Criterion 5	The incentives are open to foreign and domestic investors
Criterion 6	The quantum of project specific assistance takes into consideration the availability of other assistance from the Australian or State and Territory Governments.
Criterion 7	Any incentives are consistent with our international obligations, including under WTO.

APPENDIX FOUR

The importance of SME self help initiatives and leadership training for improving the productivity and competitiveness of Australian manufacturers

The non-government members of the Taskforce are encouraged by several initiatives being used to better connect small and medium size businesses with each other and to provide leadership training for SME management. In particular the High Performance Consortium Initiative amongst Victorian manufacturers and the *Leadership21* program developed by Enterprise Connect and Mt Eliza Executive Education are examples of practical initiatives that can really make a difference to the productivity and competitiveness of Australian manufacturers.

High-Performance Consortium

Background

The High Performance Consortium (HPC) was established in 2002 with some initial funding from the Victorian Government as part of its Agenda for New Manufacturing. HPC is a not-for-profit organisation that through collaboration facilitates the development of non-competing high potential manufacturing enterprises towards world-class performance. Working together, members achieve tangible business benefits while developing a sustainable World-Class capability in their business and people. The HPC network is a challenging environment that dramatically accelerates each member's progress in achieving and sustaining World-Class business performance and growth.

Whilst HPC was established with some initial government funding the founding directors recognised the importance of creating a sustainable model that would be self-funding once the government funding ceased. Success for participating firms is reflected in growth in areas such as capital investment, employment and exports.

The consortium achieved the goal of being self-funding within four years of being established and continues today to support companies wishing to improve and strive for excellence in this globally competitive market.

The original consortium has changed considerably over the years in response to the changing market dynamics and membership needs.

The initial consortium included 15 member companies but over time membership has been reduced to a more optimum level of 8 to 10 members.

Companies that have participated in HPC over the 10 years include both privately held and local operations of larger multi-nationals. Amongst the companies are:

- Gekko Systems
- Volgren
- Corex Plastics
- AME Systems
- Tatura Milk
- Champion Compressors
- Jayco
- SGE Analytical Science
- Glassform
- Kraft
- PPG Industries
- Elastomers Australia

The model

HPC was originally based on a model from Canada that has been developed and evolved over the years. The directors of HPC have links to consortia in Canada and also routinely present and share best practice models at the North American Association of Manufacturing Excellence conferences. It is estimated that North America has in excess of 85 consortia.

The HPC model is somewhat unique as it is based on an open model to enable members to access suitable diagnostic tools, benchmarking, workshops and experts as required. It applies action learning to address areas of need identified in member companies. This is often achieved through facilitated events or programs to encourage peer-to-peer interaction to implement improvement.

The HPC program is customized and changed each year in response to the feedback and individual member's needs. Each year the members are engaged in a review of the past twelve months and a decision is taken on whether to continue with the consortium for the following year. An important aspect of the HPC model is the whole of business approach and engagement as this supports management in accelerating and sustaining whole of business improvement.

The consortium activities include:

Diagnostic and Benchmarking

Each member undergoes a formal Diagnostic providing an objective assessment of the company's World-Class status and identifies areas for improvement. The diagnostic and development plan is revised annually. Summarised information is presented to the consortium members on progress in Key Performance Indicators providing a further opportunity for benchmarking and performance review.

Consortium Meetings

The meetings provide a forum to learn from peers about the practices and experiences of fellow members in specific areas where they have achieved excellence. Participants must be willing to share their expertise as well as learn from their peers. Specialist speakers are brought in as needed to expose participants to the latest thinking and best practices.

Leaders' Forums

Being globally competitive requires effective leadership and presents many common challenges. These tailored forums enable like-minded leaders to share experiences and challenges, leveraging the knowledge and support of their peers as they strive to improve their business. There are a number of these forums providing support to the various levels of leadership within member organisations.

Training and Workshops

Specialised practical training is held to advance the skill level of people in the areas identified by the member companies. To meet the needs of the member companies training is sourced if available or custom designed if nothing appropriate exists.

Special Network Action Project Teams (SNAP)

A SNAP is comprised of member company representatives that are focused on a specific opportunity or learning area. They are often in the form of a 'Kaizen Blitz' focused on implementation. The power of a SNAP is in the input that peers from other member companies provide, as well as the opportunity for them to reapply learning at their own site.

Communication

Members have access to information on best practices in other parts of the world at the Consortium meetings, on the web site and via the email newsletter. The website includes links to key sites. In addition to the formal meetings, members often talk with other members to seek input on approaches to issues in their business.

Global Search for Best Practices

Consortium members learn from each other, and while some 'Best Practices' exist in the member companies we search the rest of Australia and the world for the latest 'Best Practices'. The facilitators use and expand their network to find the best in Australia and the world to share with consortium members.

Facilitation, Coaching, Consulting Support and Education

An essential role of the Consortium Facilitators is to support companies' progress toward world class. Consulting and coaching support is available for each member to review progress against plans and assist with removing any barriers to improvement. Leading any significant business improvement initiative is both professionally and personally challenging, therefore personal coaching is also provided as required.

The outcomes of collaboration and leveraged learning

HPC uses a customised approach to provide tangible business outcomes to the member companies. The benefits can be measured in many ways including productivity, employment, investment in capital and training, exports and ultimately the financial performance of the business over time. There are many examples of dramatic increases in productivity across HPC member companies over the years. The majority of the companies have also grown significantly over the past 10 years and continue to be resilient despite some very challenging global conditions. For example in recognition of their success and growth Volgren, a founding member, have been acquired by the Marcopolo Group, one of the largest global bus manufacturers, as part its global expansion. The majority of members have also been recognised through various industry awards such as the Victorian Manufacturing Hall of Fame.

Summary

Many companies struggle to maintain the energy and enthusiasm to continuously improve and evolve their businesses. Membership of a collaborative community provides an effective support mechanism for self-help and continuous learning. A whole of business membership can provide some peer-to-peer learning and support across the organisation to enable change.

The initial government support was an important catalyst to enable the creation of a successful model but it must become self funded over time as this is a measure of its value to members.

An open model and a whole of business approach are important, as companies will only survive and prosper if they are addressing the right areas of their business at the right time. The model must be revisited and revised appropriately at least annually.

Membership of HPC also provides managers with an opportunity to access the collective minds and knowledge of their peers to challenge their paradigms and thinking. It also acts as an important source of advice and support.

Non-contributing members must be managed appropriately to improve their contribution or leave such a community. New members also re-invigorate such communities and can act as an important catalyst in renewal.

The High Performance Consortium is globally recognised by their peers to be leaders in the successful establishment and facilitation of such communities.¹⁰⁵

Leadership 21

What is Leadership 21?

Leadership 21 is a joint development between Enterprise Connect and Mt Eliza Executive Education and has been developed specifically for the CEOs of small and medium sized enterprises (SMEs).

It addresses a skill gap identified by Enterprise Connect Business Advisers and highlighted by the 2009 Management Matters in Australia report, namely that many SMEs lack holistic management skills, which in turn limit their ability to implement continuous improvements, increase competitiveness and maximise productivity. It also addresses the lack of practical leadership offerings for the SME market.

The course is aimed at business owners and senior managers of SMEs and focuses on management and leadership skills. It leaves the participant with a practical set of frameworks and tools designed specifically for the needs of owner-managers, which they can then use within their business.

Leadership 21 combines basic management theory with practical implementation projects drawn from the Enterprise Connect Business Review of their business.

It gives participants an opportunity to work 'on their business', rather than 'in their business' and to take the time out to do strategic planning and implement business improvements, with the support of a business coach and leading world experts. It also connects participants with a network of other Owner Managers. It covers issues including strategic planning, financial analysis, managing business growth, change management, innovation and decision making, and vision and communication.

How is it delivered?

The course is delivered over nine consecutive months. Around 25 SME participants are involved in each cohort. They are required to be away from their business a total of ten days, over four residential workshops. Between these residential workshops participants implement their learning and observe the outcomes through Learning Groups, formed by dividing participants into small groups that work together over the course of the nine months to support and advise each other as they develop and execute their 'Better Business Project'. Each group is supported by a qualified business coach and meet a total of six times over the course of the program.

The 'Better Business Project' is a very practical program in which participants work on the things that will make them and their business even more successful. Over the course of the program participants will work directly on their business, to analyse their current position, identify opportunities (and challenges) and develop (and execute) a clear business improvement strategy. The 'better business project' underpins everything participants do in the program, providing a clear focus for their learning. The time participants spend on the program has a direct and positive impact on their business. In addition, participants also work on developing their leadership and management skills.

Participants also receive five 90 minutes of one-on-one executive coaching sessions. The focus of the one-on-one sessions is to further support participants develop greater confidence as a business leader, capable of executing the strategies that will move their business forward. The first two sessions occur before the first residential workshop, and the other three between each workshop.

Impact

So far, 168 SMEs (65 per cent manufacturers) have either completed or are undertaking *Leadership 21* and the results have been very positive. Participants have reported significant changes to their businesses and leadership performance, with the skills they have learned being instantly transferred back to their businesses, and them feeling more confident and better equipped to grow and develop their businesses further.

In addition, a number of the learning groups from the first two cohorts have continued to meet after finishing *Leadership 21*. It is an example of why SMEs and their manufacturing CEOs need a particular approach to upgrading their skills. It is an approach that can provide significant benefits and lead to spill over benefits through on going self help self funded initiatives involving groups of SMEs.

APPENDICES – FOOTNOTES

94. All of the proposals in these and other matters made by the non-government members of the Taskforce are consistent with Australia's trade treaty and WTO obligations. It is questionable whether the same can be said for some of the measures adopted by Australia's competitors, be it China or several other nations. When our report talks about reducing the time, cost and risk of doing business in this country the non-government members of the Taskforce are also referring to these trade related matters which during periods of global turbulence and instability assume greater importance.

95. Another possibility for addressing infrastructure demand stimulus would be to widen the mandate of the Export Finance and Insurance Corporation (EFIC) and its work with investors and private sector finance facilities in financing infrastructure projects that are needed to support a wide range of manufacturing exports including those associated with both resource and non resource domestic and export projects.

96. DomGas Alliance (2012), *Australia's Domestic Gas Security*, page 5.

97. Beach Energy Limited (2012), Presentation to Resource and Energy Symposium, Broken Hill, May, page 9.

98. Geoscience Australia (2012), *Australian Gas Resources, 2012*, Canberra, May, page 3.

99. DomGas Alliance, *op. cit*, page 17.

100. Geoscience Australia, *op. cit*, page 1.

101. DomGas Alliance, *op. cit*, page 10.

102. *Ibid*, page 11.

103. Geoscience Australia, *op. cit*, page 3.

104. Australian Government (1997), *Review of Business Programs, Going for Growth - Business Programs for Investment, Innovation and Export*, (Mortimer Report), Canberra, June.

105. Hugh O'Donnell: *High Performance Consortium LTD. 30th*, June 30 2012 hugh.odonnell@hpc.org.au.

