

**ACTU Submission to the
House of Representatives**

***Economics Committee Inquiry
Into Manufacturing***

August 2006

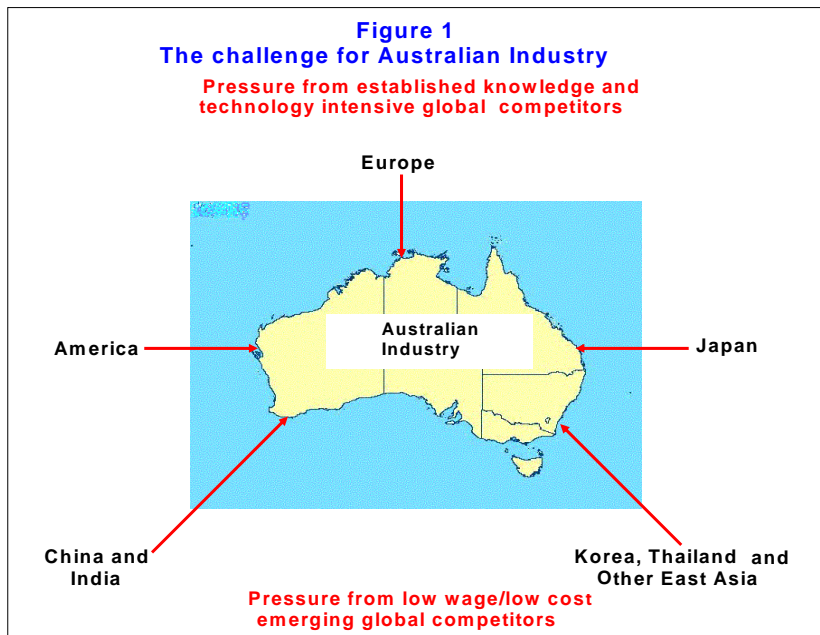
INTRODUCTION

The ACTU is pleased to provide this submission to the House of Representatives Economics Committee for the inquiry into manufacturing. The ACTU has already submitted to the inquiry the speech by Greg Combet to the National Manufacturing Summit “Repositioning Australian Manufacturing in the Global Economy”.

That speech has been listed as an exhibit to this inquiry as it is already a public document. In this paper, we will further develop the policy recommendations contained in the ACTU Manufacturing Summit paper. We will do this in two parts. First, we draw on international developments by providing examples of how and why other nations are focused on developing policies to help their manufacturing and related service industries move up the value chain. Secondly, we consider how Australia can build on its existing policy regime to help move our manufacturing industry up the value chain.

The New Competitive Dynamics of the Global Economy: Moving Up the Value Chain

More than ever before, Australian industry is feeling the pressure of international competition both in our home market and overseas. As suggested in Figure 1 below many Australian companies and industries are being squeezed between high tech/knowledge intensive competitors based in Japan, Europe and America on the one hand, and the low wage/low cost competition coming from East Asia and India on the other hand.



These competitive pressures are impacting manufacturing, processed food, services and a wide range of industries exposed to global competition.

The consequences of these competitive pressures on Australian manufacturing are reflected in the following facts about the industry's recent performance:

- When the June Quarter 2006 National Accounts are released on the 6th of September we are likely to find that manufacturing has recorded zero growth over a three year period including four quarters of negative growth. This is despite strong domestic and global demand for manufacturing.
- This stagnation of manufacturing growth is a continuation of longer term trends. As recent reports have confirmed, in the last fifteen years only eight of manufacturing's 43 sub-sectors had annual growth equal to or better than economy wide GDP and 14 of the 43 had negative growth¹.

¹ NIEIR: *The State of Australian Manufacturing: Summary Report*, July 2006, Table 2, p3

- Elaborately transformed manufacture exports have collapsed. The annual growth rate (trend – Australian produce basis) for ETM exports has fallen from 17.7% (1984-85 – 1993-94) to 11% (1990-91 to 2000-01) to -0.2% (2000-05). Our exports of simply transformed manufactures have experienced a similar collapse.²
- The import share of domestic demand (in constant prices) has gone from 24% (1990) to 35% (2001) to nearly 43% (2004-05)³. Effectively this means there is little or no incremental growth in domestic demand for sales by Australian producers.
- Between December 2002 and December 2005, the Ai Group survey data shows manufacturing capacity utilisation falling from 78% to less than 73%. Over the same period ABS employment data (seasonally adjusted) shows the loss of more than 50,000 manufacturing jobs⁴.
- The Ai Group Report *Manufacturing Futures* projects another 10% of manufacturing production moving offshore within three years; and NIEIR projects that over the 2005-2020 period manufacturing's average annual growth rate will be less than 0.5% with only nine of the industry's 43 sub-sectors experiencing growth of more than 2% per annum⁵.

These facts highlight the reality of Australian manufacturing. This inquiry has to deal with it now. All the State and Territory Governments have come together with industry and will release a National Manufacturing Action Plan this year. The Federal Industry Minister will make an Industry Statement next year. Unless the dilemma manufacturing faces is comprehensively addressed there will be more down sizing, stagnation and over time an accelerated process of de-industrialisation.

² DFAT: *Exports of Primary and Manufactured Products Australia: 1993-1994; 2000-2001 and 2005*

³ NIEIR opt cit, Table 3, p5

⁴ Source: AiGroup website for manufacturing capacity utilisation and ABS 6291, 0.55.003, May 2006 for employment date

⁵ NIEIR opt cit, Table 12, p35

Australia is certainly not alone in confronting this dilemma. As the Senior Assistant Deputy Minister of Industry Canada put it recently:

“Structural change in Canada has not kept pace with the US, which is more heavily represented by high growth, leading edge manufacturing and services.

We can no longer compete against low cost countries like China, Mexico and India in standard technology goods and services.

In effect, we are being squeezed into an increasingly narrow middle ground with countries like China out-producing us at the lower end and the US outpacing us in leading-edge technology.

Our standard of living depends on our ability to move up-market in all major sectors on the basis of innovation.”⁶

This message of moving up-market or up the value chain can be heard everywhere. In Hong Kong for example:

*“The government’s strategy is to shift the focus of Hong Kong’s economic development to high value-added sectors, namely financial services, logistics, tourism and production and professional services. This strategy seems to make sense as Hong Kong has already shown competitive advantage in these sectors. **“Moving up the value chain” has now become the slogan of the government’s economic policy** The economic strategy outlined in the Hong Kong Governments 2002-2003 Budget by Financial Secretary Antony Leung also means a change in the Government’s role in Hong Kong.*

⁶ A. Sulzenko: Senior Deputy Minister, Policy Sector: *Industry Canada*, January 2004, www.queensu.ca/sps/thepolicyforum/speakersseries , accessed Tuesday 2 August 2005.

Over the past few decades, the government adopted a positive non-intervention policy in Hong Kong's economic development. This policy has served Hong Kong well in its restructuring in the 1980's from an industrial city to a regional service centre.

In Leung's budget speech, the government's role has become that of "proactive market enabler." The government will become more actively involved in promoting the high value added sectors through cooperation with the business sector to secure market access for local companies.

In addition, the government will prepare "to take appropriate measures to secure projects beneficial to Hong Kong when the private sector is not ready to invest in them."⁷

The story is similar in Singapore where the Economic Development Board is leading the push to develop its bioscience industries and the high tech end of manufacturing to "ease the pain as [low/medium tech assembly] jobs in electronics and petrochemicals move to China and other lower cost neighbours."⁸

In Ireland, recognition of the need to move up the value added chain has transformed that country's approach to attracting foreign direct investment. As the nations investment promotion agency IDA put it in its 2004 annual report:

"In 2000, IDA Ireland recognised that the dynamics of Ireland as a location for foreign direct investment were destined to change substantially. Two factors were critical in this regard:

- *Continued liberalisation of the world economy and globalisation of business were changing the nature of competition and choice of locations for FDI.*

⁷ Tdctrade.com, *Hong Kong Economics*, March 7 2002

⁸ Economist.com: *Singapore's Man with a Plan*: August 12 2004

- *Ireland's own success would lead to further changes in business conditions, which would require step changes in our attractiveness for more advanced developments.*

As a result, the types of investment for which Ireland could compete would substantially change and many earlier investments, which came to Ireland in different times, would be subject to considerable threat.

In this context, IDA Ireland set a new course aimed at contributing to the continued transformation of Ireland to a world-leading, knowledge-based economy at the forefront of technology and business innovation. We formulated a strategy comprising three key elements:

- *A focus on winning new investments where the activities were at the quality end of the business value chain.*
- *The growth and development of our existing clients through the addition of new functions and activities in Ireland, which raised the value-add of the Irish operation and increased its strategic relevance to the parent.*
- *Actively working to develop the business environment and infrastructure, both educational and physical throughout Ireland needed to support knowledge intensive businesses. Regional development is a special priority in this regard.*⁹

Ireland's R&D policy has also changed. There was a time in the advanced economies when policy focused on the level and type of R&D incentives and how these were correlated to incremental increases in a firm's R&D. This is still important, but the focus is changing. For example in Ireland, eligibility for R&D incentives (which can equate to a subsidy equivalent of more than 30%) increasingly focuses on how the incentives lead to an upgrade in a firm's management and organisation capabilities so that the company's innovation system is substantially enhanced.

⁹ Source: IDA: *Annual Report*, 2004 p.3

In Ireland, as in Canada, Australia and a number of other advanced industrial economies some of this “re-think” came as a result of developments in the IT and telecommunication hardware sector as multinationals downsized and moved capacity offshore to low cost locations. In Australia’s case, after office and telecommunication equipment and parts exports increased three fold from 1990 to 1997 (reaching nearly \$1.7 billion) the movement of capacity offshore had cut exports to less than \$1 billion by 2004.

The new emerging model for moving up the value chain in this sector for many countries, is implementing strategies to keep the R&D, design, prototyping, software and systems engineering capability anchored in their own country while grudgingly accepting that a significant proportion of the low/medium tech assembly and component manufacturing operations and the thousands of blue collar jobs that support it, will move offshore. This is often accompanied by efforts to encourage niche-manufacturing opportunities for small and medium size enterprises away from the cost sensitive volume products that have become commoditised. This is happening in other sectors as well including auto and components.

But strategies for moving up the value added ladder in this and other sectors are far more complex than this and embrace the whole supply chain. This was very well expressed in a speech recently by Dr Lee Boon Yang, Singapore’s Minister for Information, Communication and the Arts. The insights offered on strategic positioning within the value added chain warrant it being quoted in detail.

“High-tech manufacturing activities centre on supply chains which are primarily driven by brand owners of end electronic products, usually large MNCs. Supporting these product companies in the supply chains are local manufacturing companies providing raw materials, components and services such as product assembly, distribution and logistics.

In recent years, this sector has experienced major shifts that have changed the ways companies define their value-add and how they interact with their partners along the supply chain. Some of these trends are especially pertinent to Singapore.

First, product companies are outsourcing more activities on a global basis so that they can focus on core competencies such as design, branding and high-end manufacturing. Dell and Cisco are celebrated practitioners of such a strategy. They no longer make any of their products in company factories preferring to outsource the manufacturing to a number of well-placed and highly competitive contract manufacturers. In Singapore, Hewlett-Packard outsources the building of whole printers to contract manufacturers such as Venture Corporation.

For outsourcing to work well, brand-owning companies need to strengthen linkages in complex supply chains. Increasingly, the competition will be among supply chains rather than among individual factories or among individual companies. Success will in part depend on the degree to which a supply chain is integrated and its responsiveness to market demands. Singapore's manufacturing companies will have to upgrade their supply chain management capabilities in order to compete effectively in this globalised market.

Second, the emergence of low-cost manufacturing locations in the region, particularly China, means that companies in Singapore have no choice but to move into higher value-added activities such as product design and high end manufacturing. In this respect, it is encouraging to note that Hewlett-Packard has announced that it will be manufacturing one of its highest end server products, the Superdome in Singapore. Meanwhile, Philips' Innovation Centre in Singapore, their second largest worldwide with 1,000 staff, is developing products and components for audio-visual systems, universal serial bus or USB systems, optical storage systems and wireless applications.

As companies spread some of their manufacturing activities across the region while keeping Singapore as a location for high end work, it is even more important that the movement of goods and information along these regional supply chains are well coordinated. Singapore, with its efficient and well-connected Infocomm services and expertise in supply chain management, can play the role of a regional supply chain nerve centre.

Clearly, to remain relevant in this new high-tech manufacturing landscape, Singapore has to position itself as a location for high-end manufacturing activities, as well as a nerve centre for coordinating regional supply chains that offer the whole spectrum of manufacturing services.

To realise this vision, IDA has embarked on a project called "Collaborative High-Tech Manufacturing Plan" to develop integrated and responsive supply chains in Singapore. Linked by Infocomm technologies, companies can provide highly efficient end-to-end services from product design to distribution. This approach will leverage on some of Singapore's strengths. Singapore already hosts many leading international and local players in manufacturing, logistics and finance that can be brought together to form world-class supply chains. The more mature level of technology adoption amongst these players and our excellent infrastructure gives us the advantage of using Infocomm technology as a strategic tool for supply chain integration.

IDA has set the target of building 10 end-to-end supply chains within 5 years. These chains will be centred on product companies with operations in Singapore such as Hewlett-Packard, Seagate and Maxtor, and original design manufacturers, or ODMs, such as Venture Corporation and MMI. IDA is prepared to co-fund projects that will strengthen linkages within the supply chains so that these chains can compete as a closely integrated group."¹⁰

¹⁰ Dr Lee Boon Yang: IDA Singapore, March 2004

Singapore's approach to supply chains and moving up the "value added ladder" is also assisted by how it structures its investment incentives. The tax deduction on R&D for approved companies is 200%. The Pioneer Incentive for eligible manufacturing and service companies provides tax relief on new investments for five to ten years. The Development and Expansion incentive can provide a company tax rate of 5% for up to ten years for firms to upgrade to higher value added activity. The three key criteria used by Singapore's Economic Development Board (EDB) in determining eligibility for these incentives include:

- ***"Knowledge intensity including development of new technology and innovation***
- ***Tradability which in Singapore's situation means a high export orientation***
- ***Value added per worker"***¹¹

Not surprisingly, the low cost East Asian economies who along with India were usually the recipients of new assembly only facilities when production moved off shore in the advanced economies have also focused on how they too can leap frog up the value chain to the high value activities rather than merely the assembly of imported components. China is a good example:

As "management guru" Tom Peters told his audience of 700 in New Zealand at the Better by Design 2005 conference last year: "It's up the value-added chain or out of a job in shockingly short order"

As Peters pointed out a new foreign owned factory opens in China every 26 minutes and a new research and development lab every 43 hours.

¹¹ This summary of Singapore's approach comes from The Allen Consulting Group: *Growing Global Niches: Positioning Victorian ETM's for Future Growth*. Report to Victoria's Department of Innovation, Industry and Regional Development. Jan 2005 Chapter 3

“China and India are moving from being low cost manufacturers at the speed of light ... If we are going to compete with the emerging economies we need a massive increase in innovation productivity.”¹²

But much of the evidence suggests that the surge in innovation productivity is occurring in the emerging East Asian economies to a greater extent than in Australia. For example, in the mid 1990's China's business R&D to GDP ratio was less than half that of Australia's. By 2002-2003 China's business, R&D to GDP ratio was higher than Australia's (0.82% compared to 0.79%). This is a dramatic shift.

The strategic role of science and engineering in fostering innovation is not lost on countries like China and India as they move to position themselves higher up the value added ladder. For example in China:

“The country now has 12,800 computer software companies – about 10,000 of them hot housed in new software parks set up by ambitious local governments with broadband connections, the latest hardware platforms and many implicit subsidies. In 35 of China's top universities, new software institutes have been operating to combine the best theoretical and practical skills. This is all part of a 15 year strategy to lift China into a higher qualitative level of economic activity¹³”.

China is also designing sophisticated strategies to attract its expatriate engineers back into its technology intensive industries¹⁴ In addition with \$400 billion of foreign direct investment since the mid 1990's many multinational corporations operating in China are also adjusting their global recruitment- retention strategies and redeploying part of their skilled engineering and science base to China. This will then be followed by these firms networking with Chinese Universities and other advanced education and research institutes for additional investments to build the future engineering and science skill base that China requires.

¹² Better by Design: March 30 2005, accessed 3 August 2005 at www.betterbydesign.org.nz/news/050330_2.php

¹³ Hamish McDonald: “China: Economic Giant Rivers to its feet” Sydney Morning Herald April 14 2005

¹⁴ Jeff Pryjanski: *Solid State Technology Wafer News*, Feb 2004

But China is still very dependent on how global corporations fit Chinese based firms into their global supply chains .For companies based in Korea and Japan, the strategy is often about keeping the high value added work at home and moving the lower value added activities to China.

Both Japan and Korea are using this approach with China to regenerate their own manufacturing base. For example, Samsung, Korea's largest company has 50,000 workers in 29 factories in China. That's equivalent to the entire workforce of Australia's auto and component industry. While Samsung is keeping the higher value added manufacturing of semiconductors and liquid crystal display screens in Korea for its flat screen TV's, much of the rest has been transferred to China, including some of the R&D and design work.¹⁵

Since 1991 Korea-China bilateral trade has gone from \$5 billion to \$90 billion. Korean firms increasingly integrate low cost Chinese based component and subassembly suppliers into their global supply chains. In many cases this is from Korean factories located in China.

In Japan the approach is similar and has been one of the factors behind that country's recent industrial resurgence. As a Wall Street journal feature article on the revival of Japanese industry in Nagoya put it:

"The developing world is teeming with manufactures aiming to grab business from Japan, where costs are higher than anywhere else in Asia.

*Nagoya's manufacturers have kept them at bay with a manoeuvre now being copied by producers across Japan. They moved production of low end products overseas, but continued to make lucrative high-end goods at home."*¹⁶

¹⁵ James Brook, "Seoul train. Korea's Export Juggernaut rolls on", AFR Nov 19-20 2005.

¹⁶ Jathon Sapsford, Japan's Economy Gains Steam from Manufacturing Heartland, Wall Street Journal, October 11 2005

So a machine tool builder like Yamasaki makes its complex machine tools in Nagoya and it is more standard ones in China. Brown Industries makes its high end industrial sewing machines in Nagoya but most of its standardised fax machines and printers in China. The approach is backed up by a strong R&D spend and the traditional Japanese supply network of locals in Nagoya.

This is the brave new world that Australia confronts as global companies re-configure their supply chains and nations utilise skills, Infrastructure and innovation policy to reposition themselves in the global economy higher up the value added ladder within these global supply chains.

These developments and the new forms of global competition that accompany them are also evident in a number of services sectors. Here it is India that is the source of much discussion, particularly the debate about offshoring. What is most impressive about India is how its exports of global services as a share of GDP has accelerated more rapidly than any example we are aware of in the last 50 years. In 1994 global service exports were less than 2% of India's GDP. Today it is more than 5%.¹⁷ Behind the statistics are the stories of a number of companies like Wipro that are moving up the value chain.

“A decade ago, Wipro was an anonymous conglomerate selling cooking oil and personal computers, mostly in India. Today, it is a \$903 million-a-year global company, and most of its business comes from information-technology services. Since 1997, Wipro's revenue has grown by an average of 26% a year while profits have grown by 69%. Its 15,000 technologists write software, integrate back-office solutions, design semiconductors, debug applications, take orders, and field help calls for some of the biggest companies in the world. They are as good at doing all of that as anyone in the world. Perhaps better. And they are cheaper – on average about 40% cheaper – than comparable American companies.

¹⁷ DFAT: *Trade in Services Australia*, 2003-2004 p. 99.

It is an irresistible force, and it's on the rise. Three years ago, Bangalore was the software world's biggest body shop, offering coders at \$2 an hour. Now Wipro and a few rivals are moving upstream, swinging into such high-value services as consulting, integration, and architecture. Increasingly, Wipro is competing with Accenture, EDS, IBM, and the big accounting firms. And as often as not, it's winning.

The emergence of Wipro is inspiring and disorienting, a case study in strategic possibility – and a warning of business dislocation to come. So it is with the unforgiving logic of global competition.”¹⁸

Much of the “offshoring” debate about job losses in the advanced economies fails to recognise that as the McKinsey Global Institute pointed out, only about 11% of the worlds 1.5 billion service jobs could be performed in an offshore location in the near future.¹⁹

As Lenny Medonca from the McKinsey Group put it:

“The threat of competition from Asia worries Western executives in nearly every product and service industry. The chief concern for many is the impact of low-cost Chinese manufacturing and Indian services on global pricing. Focusing on this concern alone represents a profound misunderstanding of the nature of the competitive threat.

...Asia is no longer merely a source of comparative advantage based on low-cost labor; it is fast becoming a source of competitive advantage based on management innovation. The implication is clear; Asia can now compete on much more than price.”²⁰

¹⁸ Source: K H Hammonds: *The New Face of Global Competition*: Fast Company Online Issue 67 February 2003, p. 90 at www.fastcompany.com/online/67/newface.html accessed 11 August 2005.

¹⁹ Cited in Laura D'Andrea Tyson: *Behind the E.U Backlash* Business Week, July 11 2005 p. 95.

²⁰ Lenny T. Mendonca: *Innovation from Asia*, The McKinsey Quarterly 2005, Number 1.

In both the technology/knowledge intensive advanced economies as well as the low wage/low cost ones, there is a clear understanding that competitive success or failure in the global economy today by moving up the value chain depends heavily on the science and engineering skills base. As one writer put it recently:

“A nation’s economic power could once be judged by tonnes of steel or megawatts of electricity. But we have moved beyond these simple indicators or even updated versions such as computer chips.

All advanced societies now depend so completely on technology that their economic might is often measured by their number of scientists and engineers.”²¹

This observation is the source of a major debate going on in the United States today. Respected scholars such as Professor Richard Freeman from Harvard argue that America’s comparative advantage in high value added manufacturing and services is being eroded because it is not regenerating its science and engineering skills base while other nations are.²²

In Singapore, the shift to a pharmaceutical/biotech focus has required that country to give preference to a new generation of scientists and chemical engineers through a massive advertising campaign and Government funded scholarship program. In India the challenge is more immense:

“To keep up its 30%-plus annual growth in tech services, India requires more than 65,000 newly graduated engineers a year, according to software trade body Nasscom. New Delhi’s Institute of Applied Manpower Research figures the country also needs about 10,000 engineers annually to fuel growth in other industries, including auto, chemicals, construction, metals, and energy. Moreover since 35% of India’s 1 billion people are under age 15, national demand for everything from roads to power grids to PCs will skyrocket,

²¹ Robert Samuelson: *Scour the World for Good Ideas* AFR, August 11 2005.

²² Richard B. Freeman: *Does Globalisation of the Scientific/Engineering Workforce Threaten U.S Economic Leadership*. NBER Working Paper No. 11457, July 2005.

*making the need for engineering skills urgent. Nasscom predicts enrolment in Indian tech schools will jump by 70%, to 600,000, by 2008.*²³

All of these examples suggest that the nature of the global challenge is changing, as are the key levers of competitive advantage. As the UK Department of Treasury put it:

*“Economic activity in all countries is under pressure to move up the value chain using more sophisticated technology.... The technology rewards to innovation and predominance of knowledge driven industries, combined with the strong growth in emerging markets, means that economies must find new technology driven and high value added areas... As firms in advanced economies find it difficult to compete in low value-added products and services, comparative advantage will lie in knowledge based goods and services, which require highly skilled workers. So the demand for skilled workers is likely to increase.”*²⁴

We can add to this the critical role of infrastructure in enhancing global competitiveness. This isn't just traditional economic infrastructure such as roads, rail, ports and telecommunications. Increasingly for nations to move up the value chain they need to make strategic investments in their R&D infrastructure. A good example of this is what the Victorian Government has been doing to become a leading biotechnology centre.

“If biotechnology has an Australian Champion it lives in Melbourne. Victoria alone has spent \$900 million under the Bracks – Brumby Labor leadership to create a biotechnology industry infrastructure.

The bulk of it went to projects in neuro science, drug development and nanotechnology as well as building infrastructure in biomedical precincts across the State such as the \$400 million Bio21 project in Parkville. The area houses 2000 researchers who collectively win upwards of \$200 million in funding each year.

²³ Josey Puliyeenthuthel: *The Other MIT Business Week Asian Edition*; August 22-29 2005.

²⁴ UK Treasury Department: *Long-term global Economic Challenges and Opportunities for Europe*. March 2005, p. 44-47.

*Melbourne University has spent \$100 million setting up its contribution, the Bio21 Institute building which opens this year. The Labs are filling and part of Reynolds dental team will take an entire floor. The centre also has a separate arm to nurture biotech offspring. At Monash there is a \$257 million synchrotron, a football field sized microscope under construction to deliver pinpoint manufacturing and drug analysis. And the Monash Science and Technology Research and Innovation Precinct building houses the worlds biggest stem cell laboratory, Victoria's nanotechnology research arm and several medical spin-off companies.*²⁵

The examples discussed so far provide some insights into the new competitive dynamics of the global economy our ETM and service exporters are faced with. They suggest:

- Firms are re-engineering their management systems and organisational capabilities to build new competitive advantages higher up the value chain;
- Governments are reshaping their trade and investment promotion policies as well as their policies to encourage investment in skills, infrastructure and innovation. They are doing this to re-position their nation in the global economy higher up the value chain.

How successful firms and nations are in doing these things will significantly influence the future of Australian Manufacturing including the growth of ETM and services exports and their contribution to wealth creation. The question of course is how well Australia and the firms based here are doing these things; and how well placed we are to do them better and win more international business opportunities higher up the value chain in the years ahead. This is the subject of the second section of our submission to this inquiry to which we now turn our attention.

²⁵ Bill Pheasant, *Australia Struggles to Build Smart Industries*, AFR April 16-17 2005.

Policies to Help Australian Manufacturing Move Up the Value Chain

The global competitive environment has changed dramatically in the last decade. As a group of business leaders making up the Automotive Strategy Action Group (AISAG) put it recently:

“Australian industry is at a critical point – its ability hasn’t decreased, the game has changed.”

(ASIAG: Support of the Automotive Manufacturing Industry through ACE and Related Initiatives, Paper presented to Victoria’s MICC, August 2005)

The game has changed and as a result, Australian-based manufacturers face enormous challenges. The resources boom has pushed up the exchange rate and there are significant skill shortages. China, India and other East Asian challengers are moving quickly up the value chain rather than simply relying on low cost assembly. Markets are more open and changes in transport logistics and IT are making more and more goods and services tradable in the global marketplace. In addition, the established MNCs have integrated global supply chains and access is getting harder. More producers are demanding cost downs from their suppliers and demanding they take responsibility for supplying modules or systems rather than individual component parts as in the past. As two researchers at MIT put it recently:

“The international customers are looking for suppliers who are already able to make the products – not for firms that can be brought up to the needed level of performance ... These changes are raising the threshold of performance for supplier firms in several areas, including design and engineering, sourcing, the effective use of ICT and the ability to operate in and co-ordinate between multiple locations”²⁶

²⁶ J Sturgen and R.K. Lester: *The New Global Supply Base: New Challenges for Local Suppliers in East Asia*, Paper prepared for the World Bank project on East Asia’s Economic Future, February 2002

It all adds up to a much greater emphasis on firms upgrading their management systems and organisational capabilities. The ACTU would suggest to this inquiry that the upgrading of firm's organisational capabilities and management systems is the key to equipping firms with the capacity to move those activities with sustainable competitive advantages up the value chain.

Simply put, we need a much deeper and broader recognition that the success or failure of Australian manufacturing depends on companies building the management systems and organisational capabilities required to succeed in the global economy. There is no substitute for this .Australia needs a lot more successful manufacturing companies where:

- 1) The CEO and senior management team are committed to winning more international business opportunities and have a long-term plan to achieve this.
- 2) They invest in new equipment and technology as well as their R&D and product development capability.
- 3) They foster innovation, build their export markets, develop their people and promote their brands.

At the end of the day building better manufacturing businesses is the key to Australia moving beyond "business as usual" and repositioning its manufacturing industry in the global economy.

It would be difficult to overemphasise the importance of developing firm level capability as the central focus of an Australian National Manufacturing Action Plan. This is one of the central findings of the five-year study of 500 international companies by the MIT Industrial Performance Centre .As The MIT study concluded:

"Its not industry or sector that is important, its firm's capabilities... (Success has) everything to do with building unique capabilities that widen the distance between the company and its nearest competitor... Strategies

*based on exploiting low wage labor end up in competitive jungles, where victories are vanishingly thin and each day brings a new competitor-today from the coastal regions of China; tomorrow from the interior of China, or Vietnam and Indonesia; next year from India or Burma or Swaziland. As low end firms that compete on price move from one overcrowded segment of the market to the next, there is virtually no chance of gaining any durable advantage. **The activities that succeed over time are, in contrast, those that build on continuous learning and innovation. These allow companies to build capabilities-brand name, long-term working relationships with customers and suppliers, intellectual property, specialized skills, reputation-all of which are out of reach to companies whose only assets are their access to cheap labor...***

*Which industries, which products, which operations can survive and prosper in advanced countries? Which are condemned? These are the questions we started with. As we met with corporate executives in hundreds of companies in fast-tech and slow –tech industries, we began to see that **the core strengths of innovative and successful companies are not located in the products themselves, but rather in the capabilities a firm possesses and develops for carrying out particular functions.***²⁷

Manufacturing firms that enhance their capabilities will be in a far better position to identify those activities and niches where they can expand their business or at least survive based on more sustainable competitive advantages. While primarily the responsibility of firms themselves it also suggests to the ACTU that:

- When Government provide incentives for firms to invest they should be tied to reciprocal obligations from recipient firms to build their capabilities.
- When Government evaluate the effectiveness and efficiency of programmes and incentives a central focus must be on the extent to which the programme/incentive had the intended result in building firm level capability.

²⁷ S. Berger et al: *How We Compete: What Companies Around The World Are Doing To Make It In Today's Global Economy*, Doubleday Books, 2005

These observations apply equally to initiatives that foster clusters or strengthen supply chains.

Accordingly and consistent with the ACTU Manufacturing Summit paper the ACTU recommends that this inquiry give serious consideration to a proposal for Australia to establish a Manufacturing Advisory service similar to that in the UK.

In the UK, the Manufacturing Advisory Service (MAS) established in 2002 is playing an important role in enhancing the management systems and organisational capability of firms. MAS provides the following services:

- Direct help line support through the Regional Centres;
- A free one-day on site diagnostic visit by a MAS manufacturing specialist to review a company's entire manufacturing operation;
- Up to 10 days in-depth consultancy to, for example, introduce lean manufacturing techniques, product or process innovations, or design advice;
- Best practice activities, training and workshop activities for manufacturing across each region.

By establishing a network of productive performance centres such as QMI Solutions the States and the Commonwealth will have the infrastructure to build a service similar to MAS in Australia. It should be backed up by a shared funding agreement between the States and the Commonwealth.

- QMI Solutions is Australia's leading technology diffusion agency for manufacturing firms. Established in Queensland in 1993 QMI's benchmarking program caters to around 100 SME manufacturers a year. The process begins with a manufacturing diagnostic where the staff carry out an assessment of the firms organisational practices (inventory control, quality, process

technologies etc) and the firms performance (profitability, operational outcomes such as scrap rates and set up times etc).

- This information is then benchmarked against comparable best practice manufacturing businesses, the information for which is updated over the years and accessed from the UK.
- After the benchmark diagnostic an improvement programme is designed collaboratively with the firm to help move its processes and performance towards best practice.
- QMI's best practice improvement programs are tailored around core activities including (but not limited to) programs showcasing leading-edge manufacturing infrastructure and processes; technology audits and advice; facilitation of business and research partnerships and 'best practice' syndicates; implementation of advanced manufacturing techniques, including ongoing mentoring to ensure effective diffusion of innovative technologies to industry and training providers; and workshops and seminars covering research and development, education and training and technology utilisation. These and other services assist more than 1200 firms a year.

By setting up the advisory service described above thousands of manufacturing firms (mainly SME's) will be afforded the opportunity to enhance their capabilities so that they have the capacity to reposition their activities in those niches with the most sustainable competitive advantages. This is the fundamental precondition for manufacturers to move their firm up the value chain.

Positioning more manufacturing firms with the systems and capabilities to move up the value chain is the first and most important step in repositioning the industry in the global economy. For some firms it will involve developing or enhancing their design capability. For others it will be about adapting new product development capabilities or export market development capabilities. For the most successful

firms it will be a long-term journey of continuous improvements in the capabilities of the firm.

Related to this is a view the ACTU has about the possibility of many family-owned SME'S undergoing a process of generational change that may lead the firm to move away from a solely domestic focus to a global one.

For most OECD countries, including Australia, there is widespread concern about the economic consequences of the ageing of the population. How will society cope with a smaller working population supporting a much larger group of retirees? With health costs significantly higher for the elderly what will happen to Government finances and how will the fiscal burden be shared between the working population and retirees?

While these and related issues raise significant policy challenges, the ageing of the population probably represents a great opportunity for re-positioning Australian manufacturing in the global economy and moving more firms up the value chain.

The majority of manufacturing SME's are family owned businesses. Less than 10% export and most market their products locally with an entirely domestic focus. Yet many have the products and capability to export and some have the intellectual property to develop a global business with an Australian base.

Over the next 10 to 15 years many of the founders of these family run SME's will retire or move into a part time mentoring role. Many of these SME's will be sold with new owners taking over the firm. This represents a very significant opportunity to refocus the business to use its capabilities and IP to focus on winning international business opportunities.

But how will the new owners or managers of the business refocus the firm's activities to export markets and global operations? What will be required to change the management systems and organisational capabilities of the firm as its horizons move beyond the local market? In some cases private equity providers, business angels or regional accountancy firms will be there to help. But what about education

and training? What else is needed to facilitate this transition of Australia's current generation of SME's to a new role in the global economy? How can it best be achieved?

This a unique opportunity to encourage, where appropriate, those SMEs with the capability and/or IP to export and establish global businesses anchored in Australia.

For example, down the south coast of NSW near Wollongong there is an equipment manufacturing business that industry funds invested in (through a private equity manager). That firm employed 3 people a decade ago and 33 today. Following a generational change in family management/ownership of the business and acquisition of a related business it is rapidly expanding its ETM exports and related services especially to Asia and the Middle East.

We need many more companies such as this. A plan to encourage this to happen should include amongst other things:

- a) input from private equity providers, regional accountancy firms and business angels on what barriers may exist to successful generational change;
- b) ensure Australia's management education and training system is flexible enough to cater for these firms requirements;
- c) facilitate connections between such firms and the Productive Performance Centres and Manufacturing Advisory Services discussed in the previous recommendation;
- d) establish a contact network/website of key management personnel (CEOs, CFOs, Operation Managers, etc) both domestic and expatriate Australians who could/would work with such firms.

Doing this well could really make a difference in moving Australian manufacturing beyond "business as usual" and help position many more firms to make the move up the value chain. We recommend the inquiry give consideration to this issue.

What the ACTU has described so far is very much the first step. For most manufacturers to move successfully up the value chain they need to begin with the systems and capabilities to reposition their business in activities and market/product niches where they will have more sustainable competitive advantages.

The next step is equally important and involves government support for innovation.

As the ACTU argued in its manufacturing summit paper, Australia needs a strategy to restore double digit growth in business investment in research and development for the next decade.²⁸ This is vital for Australian manufacturing. In the decade to the mid 1990's, business investment in manufacturing R&D grew in real terms by 10.5% per annum. Since then growth has slumped to only 2% per annum (1995-96 to 2003-2004)

In the next decade, 10.5% annual growth in manufacturing R&D would mean \$60 billion invested. If growth is just 2% only \$37 billion is invested. That is a difference of \$23 billion. And that extra \$23 billion will make the world of difference to winning our fair share in the race to the top. It is how we get the high skill/high wage jobs and how we re-position Australian manufacturing higher up the value added chain with more sustainable competitive advantages.

It is the key success factor to restoring double digit export growth for our exporters of elaborately transformed manufactures and services. **Importantly it is a critical success factor for those firms wanting to move up the value chain to activities and market/product niches where product uniqueness and differentiation comes from the inputs of skill and technological innovation.**

²⁸ While the emphasis here is on R&D and commercialisation of new technologies, the innovation agenda is much broader than this. It includes amongst other things effective strategies for encouraging the take up and diffusion of new technologies amongst manufacturers.

There are a number of things that will need to be done to make this happen. Importantly the incentives for R&D need to be more targeted, rewarding those that are doing the most and aimed at strengthening a company's innovation system. Since the mid 1990's the incentive that Australia provides through the R&D tax concession has fallen from 18% to 7.5%. The ACTU supports, and would encourage this inquiry to support a higher level of R&D incentive through the tax system or via grants and loans to those firms investing more than 2% of their sales in R&D. In some cases the incentives should also encourage better networks of linkages with our public sector R&D institutions such as universities, CRC's and the CSIRO.

Over time it should be a priority for Labor and the Coalition to reach agreement entrenching the new R&D arrangements for at least a decade.²⁹ **A key reason for the success of Ireland and Singapore in capacity expansion by firms in knowledge intensive industries has been the long-term continuity of the incentives provided. The need for bipartisan support to keep the new arrangements in place for at least a decade is vital.**

If we can do this it would also provide Australia with a competitive advantage in its investment promotion endeavours to attract major global firms to establish their Asia Pacific R&D headquarters in Australia along with some of the value added manufacturing activities. Like the example quoted earlier of Singapore's Collaborative High Tech Manufacturing Plan, Australia needs to identify gaps in our participation in global supply chains and use our FDI programs to fill those gaps.

All of this is important if Australia is to move up the value added ladder and grow those activities where we will have more sustainable competitive advantages based on skill and innovation. Such an initiative as well as a more concerted focus by institutional investors on investing in venture capital can help accelerate the

²⁹ The most enduring benefits from incentives that work comes from those firms that develop their people and business systems to a higher level of capability so that the additional activity they generate is based on more sustainable long-term competitive advantages. But to achieve this requires amongst other things - policy continuity. Too much chopping and changing has occurred to key industry incentives. This is diminishing the rate of return to the community from each dollar of industry assistance provided because the uncertainty for firms causes them to apply a discount to the value of the incentive on the grounds that government will simply change the rules of the game.

emergence of new technology intensive firms such as Cochlear, ResMed and Bishop's Technology.

In addition, to this Government needs to provide an additional incentive to make new investments in risky technology intensive high value manufacturing activities.

Firms considering high-risk investments face two imperatives. The first is to be able to identify prospective returns large enough to compensate for the risks involved.

The second is to have some confidence in being able to recover the initial capital investment in a reasonably short time period.

A Leading Technology Development Allowance (LTDA) of 25% per cent of eligible investment costs should be offered for investments in high-risk ventures operating at the technological frontier. The allowance would be claimable immediately from the commencement of commercial operations against the company's Australia-wide income and would be on top of the existing depreciation schedules³⁰. The ACTU believes this inquiry should support the introduction of such an allowance in the Commonwealth's Industry statement next year.

Australia needs a significant build up in such investments to develop clusters of new activities to help us win our fair share of knowledge intensive international business opportunities. The combination of the LTDA and a higher R&D incentive for firms investing more than 2% of their sales in R&D can really make a difference in firms investing to position themselves higher up the value chain with more sustainable competitive advantages based on skills and innovation.

The ACTU manufacturing summit paper as well as our submission to the National Manufacturing Forum (which will be made public in October) placed considerable emphasis on skills and we would refer the inquiry to that summit paper.

³⁰ For example, if project involved eligible investment of \$2 billion the investor would be able to claim an extra deduction of \$400 million - at a cost to the revenue of \$120 million. The LTDA would apply to eligible projects approved by the Commonwealth. Project proposals would be assessed by an independent advisory body for their national net benefits to inform decisions on eligibility for the allowance.

The recent national audit of science, engineering and technology skills and the projected shortages that will continue to grow larger over the next decade reinforce our concern about the manufacturing industry's science and engineering skills base³¹.

The university scholarship program we have recommended for science and engineering as well as the upgrading of skills of all those teachers who teach our children maths, science and physics is something we believe this inquiry should support. The same can be said for the ACTU's support for a co-ordinated State-Commonwealth agenda for building the nations infrastructure as outlined in our summit manufacturing paper.

The ACTU has provided a comprehensive 86 page report to the national manufacturing forum which we hope will be made public with that forum's action plan in October this year. At that time we would be pleased to provide a copy to this inquiry. It covers many themes only touched on here particularly in relation to skills, venture capital and exports.

However it is appropriate to conclude this submission by highlighting 10 indicators we think are relevant as benchmarks to measure how successful the nation is in repositioning Australian manufacturing in the global economy. We are happy to discuss these and other issues at the inquiry's public hearings.

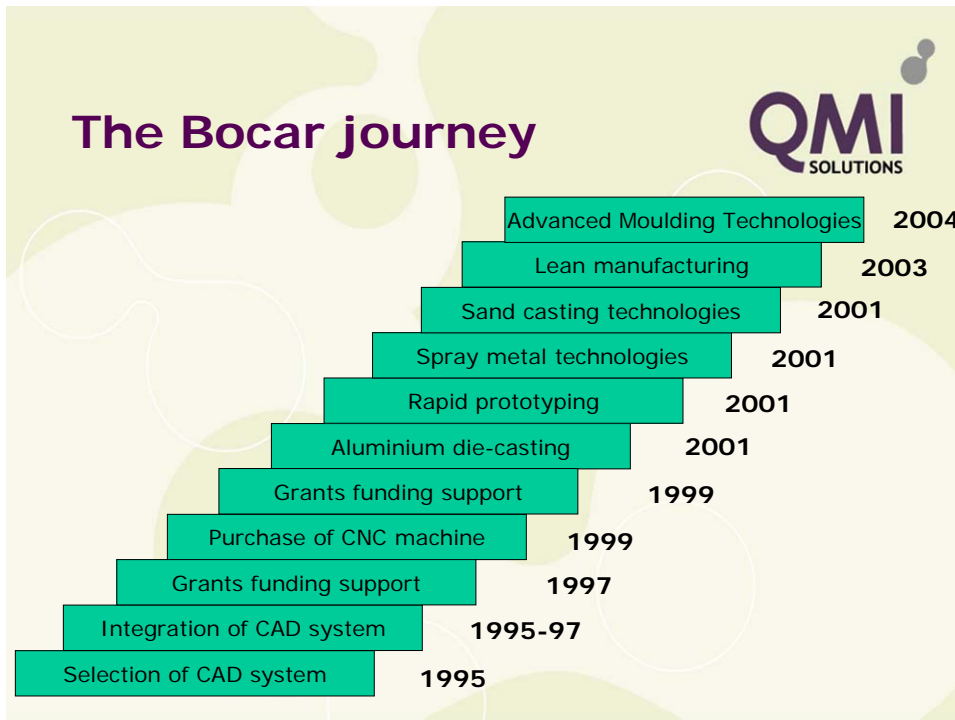
³¹ Department of Education, Science and Training: *Audit of Science, Engineering and Technology Skills*, July 2006

Concluding remarks: How We Will Know If We Are Succeeding

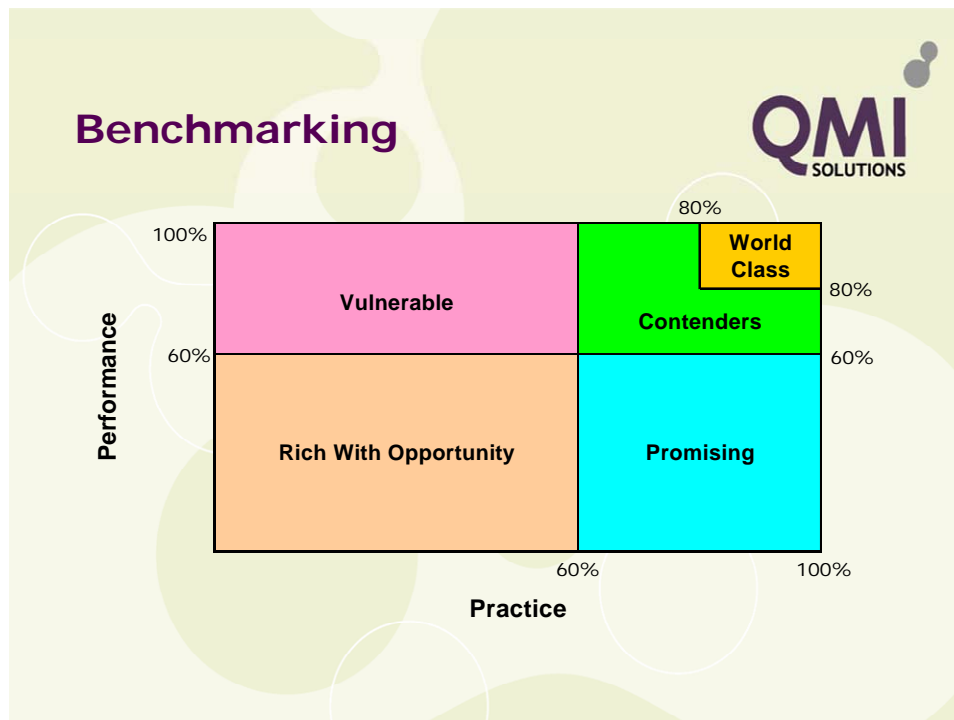
There are 10 indicators (short, medium and longer term) that will tell us whether Australia was successful in repositioning its manufacturing industry in the global economy:

- 1) The spirit of co-operation and good will evident in the National Manufacturing Forum leads to a joint Commonwealth-State National Action Plan for manufacturing being announced by mid 2007. Like the co-operative approach on infrastructure through COAG the national action plan for manufacturing gets the right balance between State/Territory and Commonwealth responsibilities and is then driven by the private sector.
- 2) By the end of 2007, a Manufacturing Advisory Service (MAS) is established with a QMI technology diffusion agency operating in every state and territory. From 2008, more than 700 firms a year go through a QMI benchmarking diagnostic with more than a third following it up with an action plan to improve firm level capabilities and management systems. Thousands of firms participate in MAS and signs emerge of what John Button used to call “a new productive culture”.

We also witness the emergence of more firms like Bocar (a Queensland manufacturer who has gone from three to 300 employees over the decade), who continuously upgrade their capabilities and position their business in activities and market/product niches with more sustainable competitive advantages up the value chain.



Over time the data collected from the QMI diffusion agencies shows more and more firms moving towards best practice on their practices and performance.



- 3) Assuming a reasonably favourable global trading environment, the enhanced capability of Australian manufacturers assisted by a much improved Austrade and a more favourable EMDG programme all helps to boost manufacturing exports. A decade average 10% per annum (or better) ETM export growth performance (nominal prices) would be evidence of this with the bottom line being an increase in market share in global manufacturing.
- 4) The incentives from the Technology Development Allowance and for firms doing more than 2% of their sales in R&D combine with greater commitment from institutional investors to invest in venture capital. As a result, Australia sees many more firms like ResMed, Cochlear and Bishop Technology emerge and go global with their key value added activities anchored in Australia.
- 5) Australia's improved performance in attracting new foreign direct investment in high value activities and new green field sites provides a new dynamic to growth and productive performance. This is partly reflected in re-investment in key industry's like auto where exports approach \$10 billion (compared to \$5 billion today) by 2012.

Importantly because the States start to make greater use of high powered private sector consultants and merchant bankers in designing strategies to attract new economy FDI, we see many more nanotechnology firms and medical device manufacturers operating here, more instrument laboratories linked in with our universities and more expats coming back to Australia to start technology intensive businesses.

- 6) Business R&D, including manufacturing R&D returns to decade average 10% per annum growth in real terms. Importantly, we find evidence of much greater collaboration between firms, universities, TAFEs, CSIRO, CRCs and other parts of the R&D infrastructure. This is reflected in patenting activity levels rising, successful spin off firms increasing and more successful commercialisation of technology anchoring new value added activities here in Australia.

- 7) Australia is recognised internationally for its science and engineering skills base and how it underpins smart manufacturing. This is reflected in apprenticeship take up and completion rates, one of the largest (per capita) engineering/science scholarship programmes in the OECD, as well as more students focused on maths, science and physics and the core disciplines of the knowledge economy. Australia also has an innovative system where over 200 leading edge firms with advanced equipment have lease arrangements with TAFE for access to the equipment by TAFE students in exchange for more favourable depreciation arrangements for the firms. Importantly, there is a culture of productive performance and life time learning being embedded in the practices of firms across the country, and a perception of manufacturing amongst young Australian as an industry with real opportunities, good pay and the opportunity to work in the global economy.
- 8) Australia is recognised for its world class economic and social infrastructure and the biannual report cards from the Institute of Engineers are filled with A's and B's rather than B's, C's and D's. We have world class broad band that is affordable and accessible by homes, schools and firms. Importantly, our social infrastructure increases community cohesion, as well as attracting a steady flow of skilled professionals, technicians and other global knowledge economy employees to work and live in Australia.
- 9) There is a change in the political culture so that a more bipartisan approach to the role and importance of manufacturing is shared by all sides of politics. This is also reflected in the dialogue between manufacturing CEOs, employees, union and community leaders on the importance of the industry – locally and globally.
- 10) Finally, by 2015 – 2016, economic historians look back at the dilemma Australia faced in the early years of the new millennium when it was widely recognised that we had relied too heavily on household debt financing current consumption as the main driver of growth.

Household debt to income ratio				
	March 1996	March 2001	March 2005	March 2006
NSW	85.9	118.1	180.4	196.5
VIC	88.2	119.5	164.8	171.1
QLD	96.1	123.2	175.7	184.8
SA	76.1	107.0	155.7	164.3
WA	91.1	145.9	186.0	196.0
TAS	89.3	119.2	146.6	152.6
NT	58.2	85.4	116.1	122.2
ACT	67.4	87.3	112.8	117.9
AUS	87.2	120.0	171.3	181.9

Source: NIEIR

But as a result of focusing on new drivers for growth including infrastructure, skills, innovation and net exports the nation had achieved a decade of more balanced growth underpinned by rising productivity, a more globally competitive and engaged business sector and a vibrant, prosperous and productive manufacturing industry.

The philosophical underpinnings of these ten indicators of success were spelled out quite clearly by the MIT globalisation team who stated:

“We do not simply inherit the capabilities for an innovative economy rich in opportunities for employment and expansion. We have to recreate them through decisions about new investments today, decisions made by government as well as the private sector.”

Australia needs to transform its political and business culture so that these decisions about new investment are heavily influenced by the impact they will have on building the capabilities that firms and the nation needs to prosper in an increasing competitive global economy. This is how we will successfully reposition Australian manufacturing in the global economy.