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The Committee Secretary
Standing Committee on Economics, Finance and Public Adminis
Department of the House of Representatives
Parliament House
CANBERRA ACT 2600

Dear Committee Secretary

Inquiry into Australia's Manufacturing Industry Now and Beyond the Resources Boom

AEEMA is pleased to provide a perspective of Australia's medium and high technology manufacturing industries to this Inquiry.

AEEMA believes that Australian medium and 'hi-tech' manufacturing can look forward to a buoyant future and will be well placed to recover from the crucial challenges facing it now from global competition and developing and emerging economies, on the basis that government commits to an attractive climate for long-term investment, and that government does work strategically with those outward looking industry sectors (such as ICT, electronics and electrical manufacturing) to integrate with global supply chains.

In this context, AEEMA has noted that many media commentators do not seem to appreciate is that a number of countries in the European Union (which derives some 21% of its GDP from manufacturing, twice that of Australia) are now rebuilding their manufacturing industries; Japan's recent return to a buoyant economy has been a resurgence in 'value add' manufacturing, and Japanese electronics manufacturers are focusing on the strategy of 'product realisation', the high value end of manufacturing, and outsourcing the lower value assembly to other countries. In fact over the past five years, the total value, globally, of knowledge embedded in manufactured goods and services has doubled.

In recognition of these trends, the Australian electronics industry is now engaging through the Australia Taiwan Strategic Framework Agreement, a major Electronics Industry Action Agenda initiative being implemented by AEEMA.

There is another emerging 'growth engine' for manufacturing and that is 'minimal manufacturing', a trend to minimise the industry's environmental footprint. In addition, the convergence of hi-tech manufacturing and new materials enhanced by the development of nanotechnologies has raised the potential of 'micro factories' and 'mini fabs' to service a wide range of industry verticals.

Australia, with its comparative advantages of a solid R&D capability base (particularly in the areas of new and advanced materials), its well educated skills base, its excellent research infrastructure (e.g. the Australian Synchrotron) can be viewed in a more favourable light in the emerging area of 'minimal manufacturing'. In addition, our designers are innovative and creative, and our engineers excel at technology integration; our contract electronics manufacturers are agile, and are globally competitive in small volume, complex product systems. But we understand that Australian 'hi-tech' manufacturers do need to become the 'best of breed' in creating and delivering customer solutions (i.e. value) through tangible goods.

For the Australian medium and hi-tech manufacturing industry (and for that matter Australian governments), there is now an urgent imperative to take a 'crash course' in learning, to find out and realise the opportunities that are now available through engagement with the Greater China Region. Its time to start thinking globally and acting locally – Australia's future prosperity depends on it.

Industry Minister Macfarlane's recent release of his policy discussion paper with the theme of 'global integration' is a most welcome and 'timely opportunity to re-examine the Australian Government's industry policy settings', particularly at a time when Australia is generating new wealth from a mineral resources boom which can be re-invested in building up our medium and 'hi-tech' manufacturing capabilities.

Yours sincerely

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Committed to Australia's ICT, electronics and electrical manufacturing industries

AEEMA

INQUIRY INTO THE STATE OF AUSTRALIA'S MANUFACTURED EXPORT AND IMPORT COMPETING BASE NOW AND BEYOND THE RESOURCES BOOM

HOUSE OF REPRESENTATIVES STANDING COMMITTEE ON ECONOMICS, FINANCE AND PUBLIC ADMINISTRATION

COMMENTS BY AUSTRALIAN ELECTRICAL AND ELECTRONIC MANUFACTURERS' ASSOCIATION (AEEMA)

INTRODUCTION

"The business of manufacturing is being redefined by changes in the market place and how companies react to them…Now, companies are operating with flexible and highly automated production systems, producing customised goods and services, and are part of and dependent on supply chains with global reach. Manufacturing is a knowledge-based and service intensive business where success depends on *delivering solutions, not simply producing things*."[1]

The manufacturing sector in Australia is facing new challenges and opportunities arising from heightened global competition. Already, competitive pressures from low cost countries such as China and India have caused the sector to adopt and adapt; in future years, as those low cost markets move up the innovation path, greater competition can be expected for high value, elaborately transformed manufactures. Currently then, the place of manufacturing in the Australian economy as a whole is under scrutiny.[2] Important questions about the place of domestic manufacturing activity, the ability of the sector to recover when more favourable conditions emerge, and the critical role that government policy can play, must be answered. Externalities eroding the sector's ability to face-off global competition include the high exchange rate, high oil prices, the rise of China and India and the everyday issues of market access, skills shortages, logistics, the need to innovate, and overall product trade promotion.

[1] The Future of Manufacturing in Canada – Building our Vision for the Future. Canadian Manufacturers and Exporters, page 4.
[2] Alan Mitchell,"*Manufacturers' decline a sign of our success,*" (page 24, Australian Financial Review. 24 July 2006).

The capacity to meet these challenges head-on can be related to size, but even then, flexibility and innovation in small firms can help. Most multinational OEMs (original equipment manufacturers) have capabilities and facilities in house, whereas Australia's manufacturing industry is largely SMEs with little in-house resource. The pressures of global business (speed to market & shorter product life cycles) are now forcing even those large multinationals into bundling R&D collaboration & product development. In other words, whose technology or innovation it is and where it originates is increasingly a non-issue.

While manufacturing may be under increasing pressure from overseas competitors, trade in manufactured goods is growing faster than primary commodities and opportunities for trade have never been greater for Australian manufacturing industries. Technology itself is far from being static and poses new challenges and opportunities for industry to progress. This requires change, improvement and innovation for success.[3]

It is worth recalling too, that manufacturing has come a long way in Australia in the past two decades after having to escape its protectionist past. In sectors such as textiles and automotive this improvement continues to be facilitated by protection, albeit through phased-down tariffs and sector-specific assistance. According to Mark Thirlwell of the Lowy Institute, "in the 1950s manufacturing only contributed 6 per cent of Australia's total exports whilst now it is almost 28 per cent". As a result, there are over 9,000 manufacturing exporters in Australia making a significant difference to Australia not only in terms of export revenue but also in providing well-paid, secure, highly skilled jobs to Australian workers.[4] Further, the decline of the manufacturing sector as a share of the

[3] Information from one of our electrical manufacturing members illustrates this point well: "Our SME company has been operating for 50 years and has survived through constant product improvement and innovation, in fact we are in the nuts and bolts section of the hazardous area and general lighting industry. We produce for the Australian market and export. Currently we are industry leaders in two areas and in particular the development and manufacture of lighting systems that are installed on underground coal mining equipment known as Longwall Mining Systems. Our competitors are Australian based companies offering Australian and imported products and to retain our position we must read the market requirements, introduce product improvements and innovative adaptations of mainly known technologies that must meet the more stringent requirements of the standards and testing stations before they can be put into service. To meet these challenges we must constantly research new materials, technology and processes,& this is a full time job for our R & D section and of course each step requires many hours of thinking "outside the square" before any of the principles are initiated. This is a process that never ceases in most SME's that service any industry; it could be providing components for the motor industry where innovation is required to meet the yearly price reductions the motor industry expects or like ourselves innovation to meet competition from low cost countries, it is all R & D, but it is not Hi Tech and the cost and disruption to meet government requirements for R & D grants outweighs the viability of making a claim that is so entrenched in red tape for most SME's including ourselves. We utilize the following in house production facilities to produce products for various industries and models for our R & D department, CAD drafting, electronics department, mechanical and electrical test facilities, toolmaking, plastic extrusion and injection moulding, sheet metal and metal machining, non ferrous foundry including coremaking, rapid prototyping is outsourced; each facility requires constant research to enable the department to meet industry demands.

[4] Tim Harcourt, Chief Economist, Australian Trade Commission. "Now here's a shock - manufacturing exporters *do* have a future". 18 January 2006

total economy is *characteristic of all developed countries*, and is *not unique to Australia*. That said, manufactured exports from Australia grew at a rate of more than 10% during the twenty years up to 2000, *significantly faster than exports from any other sector in Australia.* It remains the largest sector of the Australian economy, accounting for 13% of annual value added activity. It is the largest employer, makes up the largest component of business R&D and accounts for a significant contribution to Australia's capital stock. Every $1 generated from the manufacturing sector flows through to an additional $1.25 expenditure in the rest of the economy. Nevertheless the rest of the economy has generally outperformed the sector, resulting in the sector's share of the economy falling from 15% ten years ago and from 18% twenty years ago.[5] However, it is reassuring that some recent data from the Department of Foreign Affairs and Trade (DFAT) shows that Australia's exports of manufactured products increased by 7 per cent to $29.7 billion in 2004-05, reversing a trend recorded since 1999-2000, when exports averaged a 1 per cent decrease per annum.

Relative to other developed economies our manufacturing sector is small. As a share of GDP in 2003 the sector constituted around 20% of the Italian economy, 14% of the US economy and 17% of the UK economy. Compared with China, it fares badly. China's manufacturing sector constitutes 39% of its economy and is growing annually. AEEMA members remain concerned, notwithstanding recent upward trends, that the manufacturing sector in Australia continues to face unrelenting competition from emerging economies where costs are lower and investment environments are far superior to those facilitated by the Australian government. An example of this concern is well illustrated by comments from one of our members:

"The fact that the percentage share of the economy has steadily reduced from 18% to 13% over the last 20 years, during and after a period of economic reform intended to encourage the manufacturing sector, indicates that possibly all is not well with the economic environment and it might take more than simply 'removing red tape' to improve the situation.

Standard Communications is a radio communications manufacturing company based in Sydney. We have been very successful in the local market, and are now seeing similar success in our initial efforts at exporting, however we have experienced extreme difficulty recruiting professional engineering staff experienced in this discipline. This is due to a lack of recent engineering graduates, and very few, if any, similar manufacturing businesses in Australia engaged in R & D. This is at variance with other developed countries with which we are familiar, where there are dozens of similar industries. I realise that this is a small sample in a specialised industry, but radiocommunications is widespread and an integral part of telecommunications and defence, so I believe that this problem is indicative of 'shallow depth' throughout Australian industry.

Many facets of the manufacturing industry deserve more Government focus, in particular education, and the need to encourage students to address the physical sciences".

BACKGROUND

The Australian Electrical and Electronic Manufacturers' Association Ltd (AEEMA) is the peak national, industry body in Australia representing some 400+ infrastructure providers for Australia's ICT, electronics, and electrical manufacturing industries. AEEMA is organised in three principal divisions (electrical, electronics and 'ICT Australia®'); member companies belong to some 16 industry forums and provides secretariat services for three other associations, the Armed Forces Communications and Electronics Association and IES The Lighting Society. AEEMA also supports industry-led clusters linked to national strategic development.

AEEMA's policy platform is based on adherence to competitive market principles, removal of trade barriers including non-tariff barriers, reduced red tape, regulation only where required, equitable tax treatment for business and the removal of impediments to Australian manufacturing that harm its international competitiveness.

AEEMA is leading a national strategic plan (the Electronics Industry Action Agenda) aimed at developing further Australian innovation in contract electronics manufacturing of complex products, integrated systems for home networking and telematics, medical electronics and devices, defence electronics systems, photonics and opto-electronics. AEEMA is also closely linked with the principal R&D institutions throughout Australia that specialise in ICT technologies (electronics, microelectronics and photonics) and nanotechnology.

THE STATE OF AUSTRALIAN MANUFACTURING TODAY

AEEMA welcomes this opportunity to provide input to the Committee's Inquiry from the manufacturers we represent across the three sectors. In particular we note with some concern increasing speculation in the media and community generally that the manufacturing sector is in such a parlous state that it will not recover from the "hollowing out" of capacity and capabilities currently being experienced. There appears to be a reasonably well-founded belief that while Australia benefits from the current resources boom and high dollar driven by demand from India and China, the high

[5] AiG. "Manufacturing Futures – Achieving Global Fitness. April 2006, page 24

technology manufacturing sector will be unable to 'pick up the slack' when the boom conditions come to an end, as they inevitably will.

Adopting a more strategic and longer term view, AEEMA believes that speculation of 'rocks and crops' (i.e. mining and farming) 'versus' manufacturing and services is somewhat overstated. *All* industry sectors in the Australian exporter community complement each other in one way or another. For example, the Australian Bureau of Agricultural and Resource Economics (ABARE) has predicted export revenue from the provision of mining technology services in 2005- 2006 of approximately $1.9 billion. Whilst software products and related services are thought to contribute some $276 million of this total, it is likely that a higher figure could well be contributed to manufacturing related services.

There are numerous examples of successful Australian manufacturing and service exporters who have developed their niche in serving so-called 'old economy' industries. Many WA-based mining software producers are successfully accessing Moscow to pick up contracts in Russia's burgeoning oil and gas sector. In fact, Australia is thought to supply about 60% of the world's mining industry software. Australia's capability in agricultural research and technology is another demonstration of *manufacturing and service export* potential in 'rocks and crops'.

In regard to the future direction of Australia's mining industry, it must be recognised that Australia is likely to continue to be a significant producer and major global exporter of black coal for the foreseeable future, and that this resource is increasingly likely to be mined from deep, long-wall underground mining operations; this environment will provide increasing opportunities for Australian manufacturers of hazardous area equipment as well as lighting and communications systems.

However, all of these opportunities, whilst encouraging, must be kept in perspective when compared to the manufacturing capacity of a small country like Taiwan, a nation which has a population base similar in size to Australia. Last year (2004/2005), Taiwan exported ICT hardware of a total value of US$77 billion (A$102 billion), a total some 2.5 times greater than the entire level of minerals and energy exports from Australia. In other words, exported manufacturing/software services related to mining and agriculture alone are just insufficient to be considered as a long-term replacement to export dollars generated from minerals and energy extraction.

Australia needs to look beyond the mineral resources industries to find a way to tap into the rapidly expanding global growth sectors for ICTs – e.g. automotive electronics, telematics, consumer electronics, advanced communications etc

The success of Elaborately Transformed Manufactures (ETMs) exports has been the big story recently. ETMs earnt nearly double the rate of Simply Transformed Manufactures ($19.5 billion) in the last financial year. Particularly successful is what UBS Chief Economist Scott Haslem calls "cars, pills and wine". The export of motor vehicles and medicines and pharmaceuticals has been important to Australia as has our wine industry. In the case of medical technology and services, Cochlear (which manufactures hearing aid devices) and Resmed (sleep disorder equipment) are often cited global flag ship success stories for Australian manufacturers, but by global standards, they are small companies. For example, annual revenue for Resmed is less than A$1billion compared to the earnings (some A$6 billion) of one of the smaller global consumer electronics companies such as BenQ based in Taiwan.

Notwithstanding the lack of large global manufacturers based in Australia, the Australian high technology industry is highly fragmented and characterised by its SME nature. For example, SMEs which manufacture precision instruments can be added to the mix, with strong recent growth noted in that sector. In addition, as pointed out by Credit Suisse economist Barry Hughes, many high performing categories in high tech manufacturing exports are in the residual 'other' list (the miscellaneous or 'flotsam and jetsam' category, as Hughes calls them). This occurs because many new industries are so new (and small) that the statisticians simply do not have a category for them yet. Many of these success stories take a while to get noticed publicly and they typically fly 'under the radar' so far as the media and community are concerned. 'Bad news' stories like plant-closures and re-locations of 'low value' product manufacturing operations to China naturally get attention from commentators and policy makers.[6]

As importantly, recent re-adjustments in the sector itself and developments in the *way* manufacturing is carried out, call for a re-think of how we conceptualise and measure manufacturing's contribution. They also demand a re-assessment of policy settings and directions, as well as the role government can play in supporting further sectoral growth. While measures such as GDP share, employment levels and export earnings remain important benchmarks, they need to be supplemented to capture overseas earnings, returns to shareholders and realisation of off-shore opportunities. Increasingly manufacturing growth will be driven by utilisation of Australian capabilities abroad. Our engineers and designers will work with low-cost manufacturing attributes of emerging economies and thus earn income abroad for the investments they make in these new markets. This will not be reflected in manufacturing contribution to Australian GDP, in levels of domestic employment or even in increased exports. Rather it will translate to incomes earned by Australians abroad, to dividends repatriated to

Australian shareholders and in the share of global production undertaken by Australian based multinational manufacturers.[7] So old concepts of manufacturing and the way it contributes to economic growth must be re-assessed, and the more complex details of 'new' manufacturing and how it integrates into an economy should be recognised before the sector is dismissed in favour of 'rocks and crops'.

In this seemingly ill-informed dismissal of a manufacturing future for Australia, what commentators do not seem to appreciate is that a number of countries in the European Union (which derives some 21% of its GDP from manufacturing, twice that of Australia) are now rebuilding their manufacturing industries. Japan's recent return to a buoyant economy has been a resurgence in 'value add' manufacturing, and Japanese electronics manufacturers are focusing on the strategy of 'product realisation', the high-value end of manufacturing, and outsourcing the lower value assembly to other countries. The recent downturn in the US manufacturing sector (2.6 million lost jobs 2000-2003) has led that government to introduce sector specific initiatives aimed at lowering the cost of business, boosting investment, providing innovation incentives and freeing up trade access.

In a tactical response, countries such as Taiwan are moving towards the '6 C strategy (computing, communications, consumer electronics, the channel, content and the car), hence Taiwan's strategic commitment to the telematics industry, an area where the Australian electronics industry is now engaging through the Australia Taiwan Strategic Framework Agreement, a major electronics industry action agenda initiative being implemented by AEEMA. Taiwan is *the* shining blueprint of economic outcomes from science/innovation-based productivity. The AEEMA implemented Agreement referred to above is an excellent opportunity for Australia to get an insider's perspective on their industry inter-relationships and 'pick the brains' of the Taiwanese Government to understand better how it can continually drive significant economic outcomes from their science/innovation policies and programs.

In addition, unlike more successful innovation policy settings such as Taiwan, Australia has no focus whatsoever on the industrialisation stage. The Taiwanese spell out a continuum from idea to research to development to commercialisation to 'industrialisation'. They also seem to understand better than Australia the importance in external industry development of the inter-relationship and bundling of R&D collaboration, manufacture, strategic alliances, investment attraction and export

[6] Tim Harcourt.
[7] AiG, page 21.

facilitation; we focus on linear development and do not understand these inter-relationships. However, through the Australia Taiwan Strategic Framework Agreement, Australian companies are now starting to engage with the Greater China Region (i.e. China, Hong Kong, Taiwan, Japan, Korea, Singapore etc) and the USA, an axis which drives the world's major global supply chains.

Another current impediment to the realisation of any innovative activities in Australia is failure at the critical phase of converting an initial business concept into a proven business concept demonstrated by an industrially-relevant, pre-production prototype of the product or service. The essential essence of any manufacturing industry is its capacity to make products, more often than not comprising bundled products and product related services, to service the needs of customers in the right place, at the right time, and for the right price.

Clearly one of Australia's greatest weaknesses as regards innovation continues to be product realisation. Government funding for manufacturing based innovation is disproportionately low when compared to other activities and the current system is very much biased with the presumption being that Government funds are being "ripped off". The current system therefore burdens the applicant with considerable cost and time inefficiencies.

A major conclusion of the Electronics Industry Action Agenda Industry Working Group, led by AEEMA, has been that Australia's greatest weakness in innovation continues to be product realisation. Therefore one of the major thrusts of the Action Agenda has been promoting the need for a major national focus on product realisation strategies because an increasing number of products and services (but not all) will use electronics and ICT as the key enabling technology in which to embody the innovation.

We recognise that realising advanced products relies on "innovation technologies" – the very sophisticated computer-based tools and prototyping facilities now available and the high bandwidth networks needed for collaborative "open innovation" and remote access to such tools. In addition, the stages of technical risk reduction in which the early prototypes are assessed for standards compliance or studied for failure modes are what makes the very significant future costs of manufacture and marketing of any prototype justifiable.

AEEMA has long advocated the proposition (which is well understood in successful advanced manufacturing economies such as Japan, USA and in Europe) that integrating

understanding of the product development process with the development of skills in technology entrepreneurship provides the other missing leg to a more effective innovation system in Australia. It will always be the entrepreneur who will use mastery of the innovation and product development processes to access the resources needed to convert a market-related opportunity into a successful product or service – acquiring the technology from wherever appropriate, be it overseas, existing capabilities or, occasionally, original Australian research.

Therefore product realisation comprises all the tasks and activities that are required to develop solutions that meet a customer's needs and to realise these solutions. The term product realisation includes both product development and production development. Effective product realisation is one of the most important preconditions for future growth of the Australian high technology manufacturing industry.

Significantly many large multinational OEMs have 'in house' product realisation or product development centres. However, Australia's fragmented electronics industry comprising largely SMES does not have the resources for this capability and there is a pressing need to create a collaborative facility (along the lines of the Australian Government funded collaborative research centre concept).

AEEMA member, Peregrine Semiconductor Australia, with funding sourced from the Ausindustry's Industry Collaborative Innovation Program (ICIP), has been leading a project to map the disaggregated nature of Australian industry capability in microelectronics with particular emphasis on radio-frequency analogue design. This project (the Australian Microelectronics Product Realisation Centre) is a key activity of the Electronics Industry Action Agenda. The vision of the project is to establish an international reputation for Australia as a country of competence in RF microelectronics design and its application in a range of sectors.

The project mapping so far across all Australian states and territories has identified that there are more than 250 firms involved manufacturing and designing electronic systems in Australia. From this group, 116 firms are directly involved in the use or design of microelectronic components in their electronic systems. Of these, there are 80 firms directly involved in the design of microelectronic chips. Of this subset are 31 firms that could sub-contract their design services; the majority of these have skills in digital design.

As the Electronics Industry Action Agenda moves forward, it is intended that the Implementation Group will undertake further feasibility studies for product realisation

around technology-defined sectors such as microelectronics and embedded systems, as well as market-defined opportunities relating to electronics in areas such as transport and automotive telematics, medical devices, telecommunications, building systems (including energy efficiency, smart metering and lighting), and, where feasible, develop detailed proposals for product realisation centres.

In short, the key strategies of the Electronics Industry Action Agenda can be summarised:

- Unify & strengthen Australia's electronics industry.
- Develop industry collaboration through clusters to address the high level of industry fragmentation.
- Develop & transfer skills through MNC investment.
- Transform IP into market driven products.
- Target markets for commercialising R&D through product realisation.
- Exploit global markets, in the Greater China Region and the USA.

With 'green manufacturing' emerging as a world wide trend, largely in response to the strict environmental regulatory regime in the EU followed by other countries such as China and Japan, there is another emerging 'growth engine' for manufacturing and that is 'minimal manufacturing', a trend to minimise the industry's environmental footprint. In addition, the convergence of hi-tech manufacturing and new materials enhanced by the development of nanotechnologies has raised the potential of 'micro factories' and 'mini fabs' to service a wide range of industry verticals.

Australia, with its comparative advantages of a solid R&D capability base (particularly in the areas of new and advanced materials), its well educated skills base, its excellent research infrastructure (an example is the Australian Synchrotron) can be viewed in a more favourable light in the emerging area of 'minimal manufacturing'. In addition, our designers are innovative and creative, and our engineers excel at technology integration; our contract electronics manufacturers are agile, and are globally competitive in small volume, complex product systems. But we understand that

Australian hi-tech manufacturers do need to become the 'best of breed' in creating and delivering customer solutions (i.e. value) through tangible goods and services.

THE EXPORT/IMPORT COMPETING BASE[8]

Recent trends in manufacturing export sentiment have been positive but there are other factors that have affected perceptions of Australia's manufacturing export future. Most focus and criticism of the sector has been on manufacturing imports, not exports. But balanced economies are two way streets: both imports and exports are needed for any economy to grow and prosper. Many exporters in manufacturing are also importers because of the nature of intra-industry trade. According to Reserve Bank research, the components of manufacturing that are export-orientated also exhibit strong degrees of import penetration as well. This is not surprising. According to research conducted by Austrade and the Australian Bureau of Statistics (ABS), 45 per cent of Australia's exporters are also importers.

The focus has also only been on direct exporting between Australia and one other market. Many Australian businesses export components that are then re-assembled elsewhere and re-exported. According to DFAT, 're-exports' were valued at $7.1 billion in 2004-05. Many components are assembled in China and re-exported to other markets in East Asia, North America and Europe, but it is not confined to China alone.

Many Australian companies contributing to our export effort are not noticed or officially 'counted' as exporters. For example, an increasing number of Australian companies are part of global supply chains that provide components to larger global companies who then export. These are the 'hidden exporters', not counted as official exporters themselves but who provide components to larger multinational companies that do. According to Austrade research, there are around 200 companies in the automotive supply chain, servicing just four Australian vehicle producers. While only the car companies are counted as exporters, the component manufacturers (based largely in Adelaide and Melbourne) employ over 30,000 workers. According to Hian Yap, an automotive specialist with the ASEAN Secretariat, "Australia may only have a few major players in the global automotive industry, but its smaller auto component makers have a well deserved international reputation for quality, reliability, service and competitiveness."

Finally, many Australian manufacturing firms are niche players who specialise in design, innovation and 'knowledge-based' activities. They are not 'big hitters' in terms of export

[8] Most of the data in this section is derived from Tim Harcourt's analysis of manufacturing cited at footnote 4.

revenue but they are important in adding value and helping to keep Australia competitive and innovative.

In summary, to create the levels of new 'wealth creation' needed to replace that generated from the exploitation of mineral resources, Australia's innovation policy must be refocused on the external environment where the impact of globalisation is determining whether or not domestic policies and strategies will address the opportunities offered by global markets. In essence, this means a higher level of attention and the application of resources to the 'industrialisation' of technologies, a process which includes market development. In short, Australia's innovation system must be globally integrated.

THE ROLE OF GOVERNMENT

While pressures of competition are imperatives that every manufacturer must deal with daily, and the task of responding to global competition is one for business alone, government can play a key role in supporting the sector through maintaining strong economic growth and improving macro and micro economic foundations. Included here are better programs for export market development, reducing regulation, further tax reform, liberalised market access and facilitating skills development. In addition, federal government must articulate a clear message or strategy about the critical place manufacturing occupies in the overall economic development of Australia. Most state governments now have in place effective and fully funded manufacturing strategies; Queensland, Victoria and South Australia are the outstanding examples. These strategies recognise and clarify the role of manufacturing to each state's economy, providing business confidence that *manufacturing does indeed have a future.*

While Australia now has one of the most open economies in the world, with average tariffs sitting around 3.5%, many of our trading partners maintain high tariff and non-tariff protection. Offshore markets for our manufactured products and services must be further liberalised so manufacturers can compete – the recent failure of the Doha round of trade negotiations has delivered a severe blow to hopes for such liberalisation. Regional and bilateral negotiations must continue so that market access is more readily available, and the range of non-tariff barriers currently preventing or limiting successful trade should be addressed. Key among these is intellectual property protection in foreign markets, as well as technical and standards barriers.

Export development assistance is crucial if manufacturers are to exploit the many opportunities provided in emerging economies. The key assistance program for export

development is the EMDG, but industry is becoming increasingly concerned that this program is being eroded through onerous eligibility criteria, complex application processes and reduced funding. SMEs are once again discouraged from trying to access the program – those who do have to use consultants because of the complex processes, and this adds to their business costs.

Business regulation and the impact of its recent exponential growth adds significant costs to all manufacturers. Victoria's Department of Finance has put the cost of complying with regulation in Australia at 2.5% of GDP[9] or $20 billion per year. The full range of regulatory areas causes compliance costs that divert resources from the key task of meeting global competitive challenges. They include taxation, planning regulations, industrial relations, occupational health and safety, fair trading and competition policy, governance and reporting, procurement processes and accessing government support. In a competitive environment where Australian manufacturers must compete against those from low cost countries, *every additional cost weakens their competitiveness*. These regulation-related costs have become an excessive burden that government must address without fail.

The administration of grants and programs aimed at supporting the manufacturing sector has become far too complex and costly. Apart from regulation and its attendant costs on business, the most crippling obstacle to effective growth for manufacturers in Australia is the overwhelming belief that the multiplicity of policy programs, their application processes and the myriad details sought by government for assistance are far too time-consuming, costly and onerous. Evidence supplied by AiG in its recent Report into the state of manufacturing in Australia strongly suggests that manufacturing SMEs in particular are turning away from seeking any support for their growth activities because the efforts required to obtain that support are too much of a costly burden. Similarly, the recent House of Representatives Report on innovation states clearly that evidence supplied to its review emphasised that the entire application process for government assistance is a fraught one for small companies. Many SMEs (indeed most) do not see 'big as beautiful' and would rather remain small and flexible. So our SMEs will typically remain SMEs. A role of government could perhaps be to help SMEs open their horizons to growth and innovation, perhaps through coaching programs for innovation management that would help identify capabilities for balanced growth together with sustaining and tracking innovation. This notwithstanding, the difficulties surrounding the multiplicity of policy and support programs must be resolved to better suit SMEs. Small organisations should not be required to struggle with the processes nor have to digest

[9] Rewards from reform – Higher Productivity and Labour Participation. August 2005.

the mass of details sought by government. In addition, some support and assistance programs are characterised by a critical lack of follow up/follow through and failure to measure outcomes arising from their uptake by firms. Streamlining these processes would greatly assist in the development of innovative manufacturing processes and products. It is arguably the case that Australia's long term economic prosperity will benefit from this type of assistance, but Government of course also needs to put considerable support into technical, engineering and scientific education.

CONCLUSION

"We are a long way from the world of smokestack industries, mass production, heavy machinery and manual labour that characterised manufacturing in the recent past. Modern manufacturing is highly automated, heavily dependent on technological skills and knowledge, more customised and service oriented and increasingly integrated in international markets and global supply chains. Manufacturers themselves no longer see their activities simply in terms of transforming raw materials into components or finished products. Today, manufacturing is a system…that extends from R&D, design, and engineering, through production, logistics and supply chain management to finance, marketing and customer service, frequently to product maintenance and recycling or disposal as well."[10]

Against this new landscape, industry and government must revisit policy settings and increase economic reform so that manufacturers can adapt to the new challenges arising from global competition and complex trading relationships. Manufacturing firms now operate in one of the most competitive markets in the world. Industrialised countries are competing on high value, innovative products and groundbreaking new processes and services. Developing nations are driving costs down and penetrating traditional markets with competitive imports. Australia's current wealth creation arising from the resources boom provides us with an ideal opportunity to invest now before capacity is lost to other markets, and so as to provide a sound basis upon which manufacturing industry can indeed exploit the growing opportunities presented by the current global shifts in the sector.

[10] CME. Building our Vision for the Future page 11