



Federal Chamber of Automotive Industries

**Submission to
House of Representatives Standing
Committee on Science and Innovation**

**Inquiry into Business Commitment to R&D
in Australia**

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Executive Summary

FCAI is pleased to make this submission to the House of Representatives Standing Committee on Science and Innovation in the context of its inquiry into business commitment to R&D in Australia.

FCAI is the peak industry organisation representing the automotive industry in Australia. The Chamber's membership comprises the four passenger motor vehicle manufacturers and all major international brands importing and marketing passenger, light commercial and four-wheel drive vehicles and motor cycles in Australia.

This submission considers some of the recent and likely future influences that global innovation in new product technologies is likely to have for the international automotive industry and considers the implications that these trends are likely to have for the Australian industry.

The submission demonstrates changing nature of the contribution that the automotive industry is making to the Australian economy, highlighting the growing significance of innovation and the importance that a strong commitment to increased R&D has for the Australian automotive industry.

Based on current estimates, the automotive manufacturing industry in Australia currently spends approximately \$400 million per annum on R&D, accounts for over 8 per cent of total business R&D expenditure and is second only to the mining industry in total R&D expenditure.

The industry now stands at the threshold of a period of strong sustainable growth. However, realising its ambitious growth aspirations will not be easy.

Innovation and international competitiveness are necessary if the Australian automotive manufacturers are to secure new investment from global parent companies. Such new investment will in turn allow the Australian industry to translate its innovation capabilities and international competitiveness into sustainable growth.

The Australian automotive industry has been actively building the innovation capabilities that are essential if it is to develop new and desirable products tailored to meet customer demands both in Australia and overseas.

The Australian industry has embraced the challenge to build these capabilities and its strong recent export performance, and the success of niche 'variant' vehicles such as utilities and the Holden Monaro, highlights the benefits of a strong focus on product innovation and manufacturing flexibility.

The industry now has the opportunity to build on recent improvements to establish Australia as a recognised centre for automotive product development and production. To do this it must leverage product development capabilities and skills in flexible manufacturing.

A significant increase in domestic market sales is possible as the industry expands its product offerings to better meet local market demand. This expansion in model variants relies upon taking advantage of flexible manufacturing and product development skills to make more niche vehicle variants from common platforms.

By building innovation capabilities, and having those capabilities recognised by the world's leading automotive companies, Australia can become a centre for design and engineering of automotive products in the Asia Pacific region.

Continued expansion of innovation capabilities through the industry relies upon access to a sizeable engineering skills pool. A shortage of new engineers, who have been appropriately trained in the use of the latest computing tools, would severely restrict the future growth of the industry. In the future, not only will the four vehicle manufacturers be generating greater demand for such skilled workers, but components and tooling producers will also increasingly be requiring greater innovation capabilities to allow them to work in partnership with the vehicle manufacturers in the development of new products and processes. A run down in Australia's engineering skills base must be avoided.

While Australia will not be a major global centre for basic research into new technologies such as fuel cells and telematics, there is the opportunity for the Australian industry to take up and adapt research being done in these areas. Globally competitive levels of support for research, but perhaps more importantly for product development, should be in place to encourage the industry to continue to invest in product innovation in Australia. To this end, FCAI supports the following policy recommendations:

Recommendation 1:

The Automotive Competitiveness and Investment Scheme (ACIS) should be renewed to provide ongoing competitive investment and transitional support for at least a further five years, beyond 2005.

FCAI believes that some modifications may need to be made to strengthen the effectiveness of a renewed scheme. In particular, consideration should be given to ways of enhancing support for future investment and innovation in the industry.

Recommendation 2:

The Government should undertake a review of the performance of Australia's general support measures for R&D within the next five years. Such a review should ensure that there is appropriate general support for R&D undertaken by Australian industries – including the automotive industry.

Chapter One

Global Trends in Automotive Technology and Innovation

The automotive industry is one of the world's biggest industries with production plants located in many places in the world, huge investments in plant and equipment, large workforces, large and complex supply chains and a heavy involvement in world trade and investment. Perhaps less well recognized, but no less significant, the automotive industry is an important platform for the application and development of many new product, process and organisational technologies and methodologies. The global automotive industry is one of the largest performers of R&D and a major source of innovation.

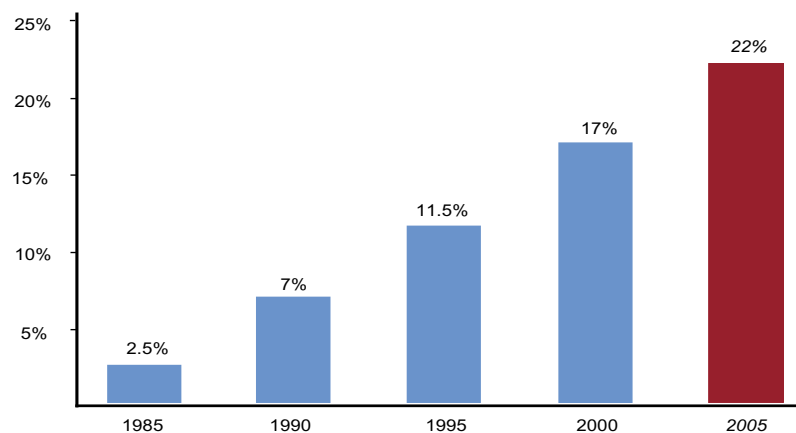
This chapter considers some of the recent and likely future influences that global innovation in new product technologies is likely to have for the international automotive industry. A key development, for example, is the likely significant change in automotive powertrain technologies. Hybrid powered vehicles are already on our roads and within the next 10 to 15 years the huge investment in R&D on fuel cell technology will have paid off and it is generally believed will have moved to widespread application almost completely replacing petrol driven engines.

New product engineering technologies

Vehicles, and their constituent components, are incorporating higher levels of technology than ever before. Cars are becoming extremely information technology (IT) intensive, with the value of electronics and semiconductor content as a percentage of production costs for an average vehicle increasing dramatically over the past 15 years, as Figure 1.1 illustrates.

Figure 1.1

THE INCREASING ELECTRONICS INTENSITY OF VEHICLES – ELECTRONICS AS A PERCENTAGE OF PRODUCTION VALUE



Source: Robert Bosch GmbH

The continual upgrading of the technology embedded in vehicles is being driven by the needs of the vehicle manufacturers to:

- increase the attractiveness of vehicles to customers;
- meet higher environmental standards; and
- meet higher safety and anti-theft standards.

These imperatives are leading to greater use of electronics and wireless IT systems which allow the vehicle manufacturers to offer:

- interactive services such as navigation systems and fault diagnostics;
- more fuel efficient and environmentally friendly engine systems;
- weight reductions through mechatronic systems – the combination of mechanical and electronic functions in one product – such as drive and brake by wire; and
- greater safety through using embedded sensors to improve airbag, braking and steering performance.

The higher levels of technology now involved in vehicles, and the expectation that this trend will continue, is forcing a significant upgrading in the skills and innovation capabilities of the automotive industry.

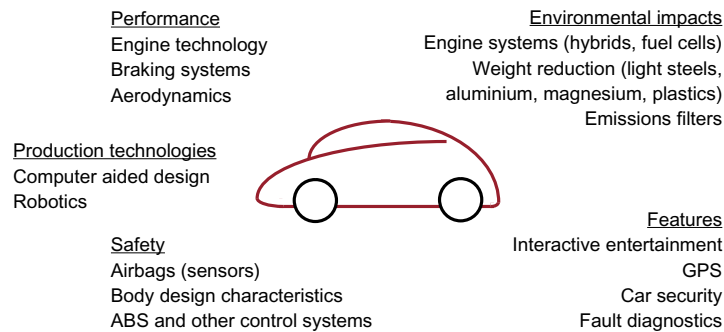
With the emergence of technologies such as mechatronics and increased reliance on computer-based design and engineering tools, employee skills have needed to broaden and deepen. In response the industry has placed increasing focus on training at all levels of its workforce to raise the skills profile of the industry.

In order to meet challenging environmental and safety standards, the industry has also been making major efforts in R&D and design (using advanced simulation visualisation technology) as it seeks to optimise drive-train performance, reduce vehicle weight and improve safety features.

The growing significance of technology to the automotive industry is highlighted in Figure 1.2, which illustrates some of the current technology hot-spots involved in modern vehicles and manufacturing processes.

The innovation intensity of the industry is reflected not only by its increasingly high technology products but also in its efforts to improve design and production processes. The automotive industry globally has led the way for other manufacturing sectors in the adoption of just-in-time inventory management, lean production methodologies, the use of robotics and now in relation to total productive management. The highly competitive nature of the industry is continuing to spur such leadership in design and production process innovation.

Figure 1.2

TECHNOLOGY HOT-SPOTS

Enabling technologies: power technology, materials technology, nanotechnology, mechatronics, semiconductors, software, wireless technology, computer technology

Source: Allen Consulting Group synthesis of material in Strategy Analytics report, Car of 2010

Australian industry's response to global influences

The global trends and influences discussed above have had a significant impact upon the activities of the Australian automotive industry. In addition, the Australian industry has also faced a number of distinctly local developments that have impacted upon its operating environment.

In response to the changes in both the global and local operating environment, the Australian automotive industry has been pursuing:

- becoming a smarter and more innovative industry; and
- building capabilities and competencies in flexible manufacturing.

A smarter and more innovative industry

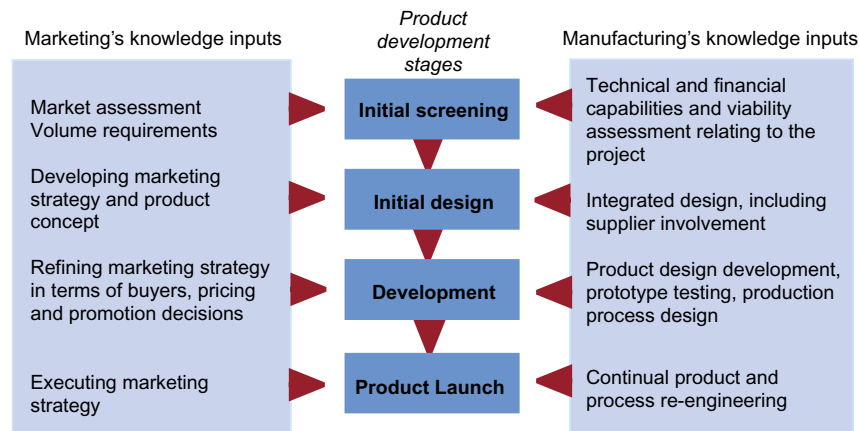
The trends towards increasing innovation intensity and changing supply chain relationships in the automotive industry globally are also clearly evident within the Australian automotive industry. They are leading to value creation in the Australian industry increasingly resting on skills in brand management, supply chain management and intellectual property creation and its successful application to product and process innovation – activities that are emblematic of the knowledge economy.

The pressure to increase innovation capabilities is particularly strong for a relatively small-scale producer of vehicles and components such as Australia. To succeed without the benefits of large scale requires the development of other areas of competitive advantage resting upon high level production competence and flexibility (allowing rapid responsive to opportunities) and product innovation (leading to world class products tailored to specific market requirements).

The process of developing and bringing to market a new vehicle or component involves a range of both marketing and manufacturing related knowledge inputs at each development stage (see Figure 2.1).

Figure 2.1

KNOWLEDGE INPUTS INTO PRODUCT DEVELOPMENT



Source: Steve Brown, Manufacturing the Future, 2000

It is the application of these knowledge inputs in combination with the use of advanced design software tools that is driving shorter product development cycles which allows more rapid response to consumer demand and tastes. The ability to innovate at speed has the potential to become a powerful source of competitive advantage for the Australian automotive industry.

Given the changing nature of supply chain relationships, and the development of partnerships between the car manufacturers and the components suppliers, an enhanced ability to innovate has been needed not just from the vehicle manufacturers but also throughout the component manufacturing sector of the automotive industry.

It has been the entire industry's commitment to innovation that has driven the industry's growing export performance in spite of Australia's isolation from major markets and exclusion from major trade blocs.

One consequence of this increased focus on innovation has been a broadening of the automotive industry's linkages with the wider Australian economy, including the science, technology and engineering system. A notable feature of the emerging knowledge economy is the willingness of major companies, which were essentially self contained in terms of developing and applying technology, to outsource significant parts of previously totally in-house research budgets and to engage in strategic partnerships with competitors to develop new generation technologies.

Relationships and responsibilities within the car manufacturers supply chains for R&D, design and engineering have also moved very significantly to a partnership model in which the car manufacturers and their first tier suppliers become partners in product development. This relationship tends to flow on to second and third tier suppliers. The consequence is a spreading of R&D and engineering capabilities across the supply chain rather than its concentration in a limited set of companies.

New and powerful ICT technologies are also enabling design and engineering partnerships to operate between parties which are separated by great distances. Australian based companies can now position themselves to become substantial exporters of design and engineering services both to companies within their parent's group and to external companies. For example, in recent years Holden has taken a leading role as a supplier of engineering and R&D services for General Motors operations in the Asia Pacific (see Box 2.1).

Box 2.1

EXPORTING KNOWLEDGE-BASED SERVICES

In 1996 the Holden Asia Pacific Engineering Group was established to support General Motors manufacturing operations in developing Asian markets.

The Group now supports regional General Motors programs in Thailand and Indonesia and has also provided engineers in support of operations in Taiwan, India, China and Japan.

In 2000, the Group exported over \$80 million in specialist engineering services, which included support for the introduction of the Corsa at the general Motors plant in India.

The Group now employs 170 design, engineering and support staff, which represents a quarter of Holden's total engineering and design resources.

Source: Holden Australia

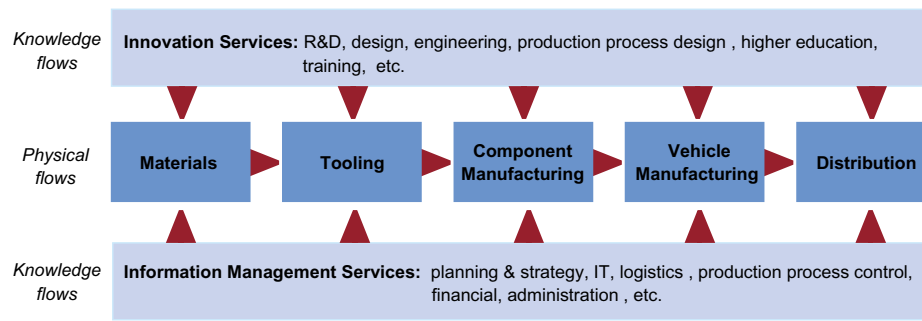
Stronger relationships are also developing between the automotive companies and the Universities, CRCs and the CSIRO. The potential for growth in these relationships is shown by the experience of the North American automotive producers with researchers in the University of Michigan, the German automotive producers with Aachen University and various Fraunhofer Institutes and the Swedish automotive producers with Chalmers University.

The industry has always had strong links to the tooling and materials sectors of the economy, and indeed these links remain strong with the automotive industry remaining a leading edge customer for these sectors. The automotive industry accounts for over one third of industrial robot purchases in Australia.

However, the industry is now also developing a new set of powerful linkages into the services sector of the Australian economy. It is now drawing upon a wide range of information management and problem solving services that support its drive to continuously improve its performance and competitive position.

Figure 2.2 illustrates how the traditional automotive industry physical supply chain is now being augmented by a parallel intangible flow of knowledge (and information) services supporting the activities of each element of the traditional physical supply chain.

Figure 2.2

PHYSICAL AND KNOWLEDGE/INFORMATION SUPPLY CHAINS

Source: Allen Consulting Group

It is the combination of each of these physical and knowledge based activity that constitutes the value stream of developing, producing and distributing a vehicle.

In addition to the new linkages that are arising due to the trends towards innovation and new supply chain relationships, the export success of the industry is also forging new linkages into the global economy for both participants in the automotive industry and those within industries that supply materials, tooling and services to the Australian automotive industry. For example, following from its work with several Australian vehicle manufacturers, RMIT secured and delivered on a training services contract with Ford's operations in Vietnam.

Chapter Two

Changing Contributions to the Australian Economy

The economic significance and contribution of the automotive industry is unique in many ways. This is true whether the focus is size, complexity, or the participation in the knowledge-based economy. Its economic importance has been well recognised, and responded to, by policy makers in the world's leading automotive producing nations.

Perhaps less widely recognised but nonetheless important, the automotive industry has been a leader in organisational innovation, production methodologies, the use of advanced manufacturing technologies and the organisation of extended supply chains. It is the bedrock of many countries engineering know-how.

The traditional view of the automotive industry as a major part of the industrial economy and direct provider of jobs and investment now needs to be extended. With its new emphasis of innovation and flexibility, the automotive industry is rapidly becoming an integral part of the emerging knowledge-based economy and has built intense linkages to the services sector. This enhances its already considerable potential for future growth.

The increasing significance of innovation

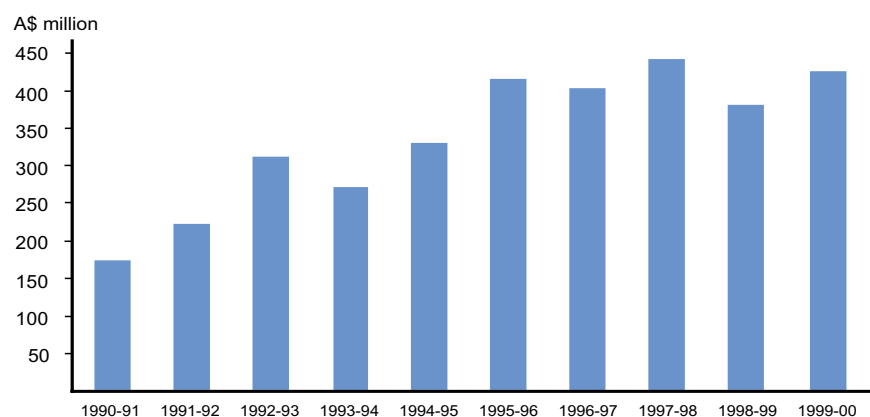
Traditional sources of contribution to the economy have been well documented in the past, both in Australia and in other automotive industry producing countries. However, the contribution of the automotive industry to the development of the knowledge-based economy is only now beginning to be fully recognised. The OECD has highlighted the importance of areas such as human capital development, R&D and links to local and global innovation systems to economic performance¹.

The increasing importance of innovation has seen the automotive industry become one of the major performers of business R&D in Australia. Based on current information, the automotive manufacturing industry in Australia spends approximately \$400 million per annum on R&D, accounts for over 8 per cent of total business R&D expenditure and is second only to the mining industry in total R&D expenditure.

As Figure 2.1 indicates, ABS data shows that spending on R&D by the motor vehicle and parts industry, while subject to significant year to year changes based on the new model development cycle, has shown a solid growth trend over the past 10 years.

¹ OECD (2000); Innovation and Economic Performance, Directorate for Science, Technology and Innovation, pg.10

Figure 2.1

RISING AUTOMOTIVE INDUSTRY EXPENDITURE ON R&D

Source: ABS unpublished data

Increasingly companies within the automotive industry are developing relationships with the universities and the CSIRO to undertake collaborative R&D. Automotive companies are members of a number of Cooperative Research Centres (CRCs). Recent examples of the industry's involvement in collaborative R&D ventures with public sector researchers include:

- Holden's longstanding involvement with the Monash University Accident Research Centre;
- The use of the Monash University wind tunnel facilities by both Ford and Holden;
- Ford's strong links with Deakin University in its ferrous and aluminium solidification technology (FAST) and stamping technology for automotive manufacturing processes (STAMP) research centres;
- Mitsubishi's involvement in the CRC for intelligent manufacturing systems & technologies; and
- Ford's involvement in the CRC for alloy and solidification technology (CAST).

Future contributions to growth

There has been a perception in Australia that the automotive industry is a mature industry with limited prospects for growth. Over the last five years or so, the industry's output has increased, driven primarily by export growth. This has been underpinned by the industry's ability to improve its international competitiveness, increase innovation and respond flexibly to emerging opportunities.

Looking to the future, there is potential for the automotive industry to grow at a significantly faster rate in the next five to 10 years. The main sources of enhanced growth would be:

- Improved productivity performance associated with the increased innovation potential of the workforce, the effective exploitation of powerful new IT and production technologies and the ongoing drive towards organisational improvement and agile manufacturing.
- The ability of the car manufacturers to meet niche demands in the Australian market by producing specialist vehicles based on existing vehicle platforms supported by technologies enabling the design to production cycle to be significantly shortened.
- Increased exports of vehicles and automotive components based on product innovation and the development of new export markets.

If the industry can capitalise on its potential in these areas it will be able to make an increased economic contribution to Australia over the coming decades.

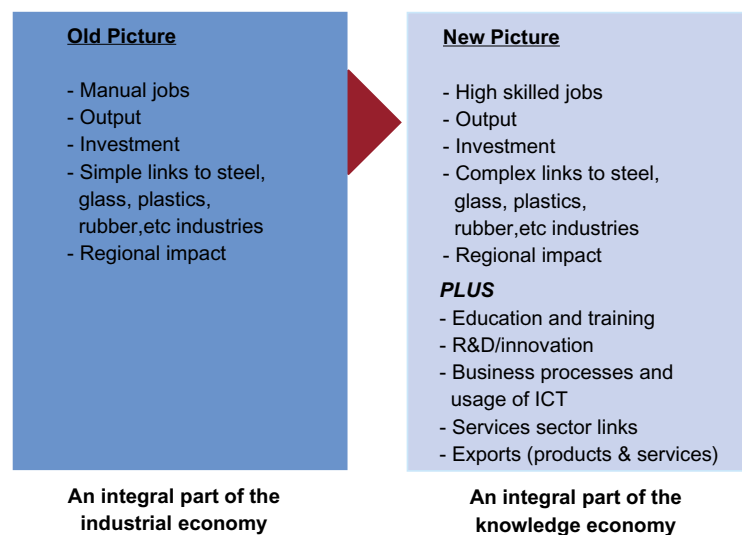
Vehicle manufacturers, by demanding high standards of cost and quality competitiveness from suppliers, will also spur greater productivity and competitiveness across the wider economy. The industry is working with its suppliers to upgrade their capabilities in meeting these standards. In this way they are acting to disseminate world’s best manufacturing methods, thus strengthening the competitive position of a number of supplier industries.

Figure 2.2 illustrates how the old picture of the industry’s economic contribution should now be superseded by a much richer modern view of the industry and its place within the Australian knowledge economy.

This modern view of the industry provides a more accurate and positive perspective on the potential of the automotive industry to contribute to the growth of the Australian economy. The challenge for policy is to create a globally competitive policy environment for the automotive industry which will enable it to achieve its inherent potential for growth in the interest of the economy and the community as a whole.

Figure 2.2

TRANSITION FROM AN INDUSTRIAL TO KNOWLEDGE ECONOMY INDUSTRY



Source: Allen Consulting Group

Chapter Three

Policies Supporting Innovation

The ability to create innovative high value added products and apply new knowledge to production processes to increase productivity are essential to industry competitiveness. Therefore, policies supporting R&D and education and training, two areas crucial to the building of innovation capabilities and competence, are emerging as an important focus for policy makers around the world.

International trends in policies to support innovation and R&D

There has been a trend, particularly in developed countries, to provide generous ongoing support for R&D activities and provide significant investment incentives to attract major automotive R&D facilities.

Support for R&D is provided through direct government funding for major automotive R&D programs aimed at providing the technology basis for vehicles for the next 10 to 20 years and through general support mechanisms such as R&D tax credits and concessions.

The OECD has pointed to the fact that most OECD countries have special tax schemes for R&D expenditures². In the USA for example a research and development tax credit is available in for certain research expenses. In order to qualify for the tax credit, expenditure must relate to research that was conducted to discover technical information that is intended for use in the development of a new or improved business component.

The credit is equal to the sum of:

- 20 per cent of the excess of the qualified research expenses for the year over the base period amount; and
- 20 per cent of the basic research payments made to a qualified organisation.

For the purposes of this calculation, the base period amount is a function of the fixed-base percentage and the average annual research and development expenditure for the four years prior to the current tax period.

In Japan R&D support is available via a tax credit system whereby R&D expenses greater than the higher of the previous two years level attract a credit against corporate tax payable equal to 15 per cent of the increased R&D expenditure.

² Organisation for Economic Co-operation and Development (1999), *The Knowledge Based Economy: A Set of Facts and Figures*, Paris.

Germany, with the Max Planck and Fraunhofer Institutes and Aachen University, has several major research institutions heavily focused on supporting automotive industry R&D. German automotive companies are also significant beneficiaries of the EU Research and Technological Development Framework Programme.³

Policies supporting R&D and education and training, are now also receiving increasing attention in many developing economies. Within the Asia Pacific region, countries such as Thailand and Malaysia are seeking to move up the automotive industry value chain and improve the skills of their labour base to increase the attractiveness of establishing more complex automotive facilities within their jurisdictions.

Support for R&D in such emerging countries is still generally offered through tax concessions or grants rather than through the existence of government funded automotive focused R&D programs involving public research institutions. Malaysia, for example, offers significant tax incentives to encourage automotive R&D activity. In Malaysia a 200 per cent tax deduction on R&D expenditure is available to all companies, while majority Malaysia owned companies are able to access direct R&D support which provides funding of between 50 and 70 per cent of eligible R&D expenditure. Access to this support is subject to the discretion of the Minister for Finance.

Australian policies supporting automotive R&D

A number of measures are available to automotive producers, providing incentive to undertake increased levels of investment in R&D in Australia. These include industry specific mechanisms such as the ACIS program; collaborative ventures between automotive producers and public research centres and generically available programs; such as the R&D tax concession. Several examples of collaborative ventures involving vehicle manufacturers, CRCs, CSIRO and Australian universities were mentioned in chapter two. Here, our comments focus on the impact and effectiveness of ACIS and the adequacy of the R&D tax concession as an incentive for increased R&D.

The impact of ACIS on automotive R&D

The Automotive Competitiveness and Investment Scheme (ACIS) is a key element of the Government's current policy arrangements for the automotive manufacturing sector in Australia. ACIS is intended to provide competitive investment support and to assist in facilitating the transition to a lower tariff environment. ACIS provides support for a range of eligible activities for vehicle producers, component producers, tooling manufacturers and automotive service providers, as follows:

- Motor vehicle producers receive support for eligible production and investment activities. Support is also provided for limited range of R&D activities, undertaken on behalf third parties (i.e. not for 'own use').

³ The EU is currently operating its Fifth Framework Programme which covers the period from 1998 to 2002 and has a budget of Euro 15 billion. The proposed Sixth Framework Programme which will run from 2002 to 2006 envisages a budget of Euro 17.5 billion.

- Registered component producers, tooling manufacturers and automotive service providers can receive support for eligible investment and a wider range of R&D activities.

ACIS benefits are delivered in the form of transferable credits, redeemable against the value of duty paid on imports of defined automotive products. The bulk of ACIS funding is legislatively capped at a total \$2 billion over the initial five years of the program, 2001 to 2005.

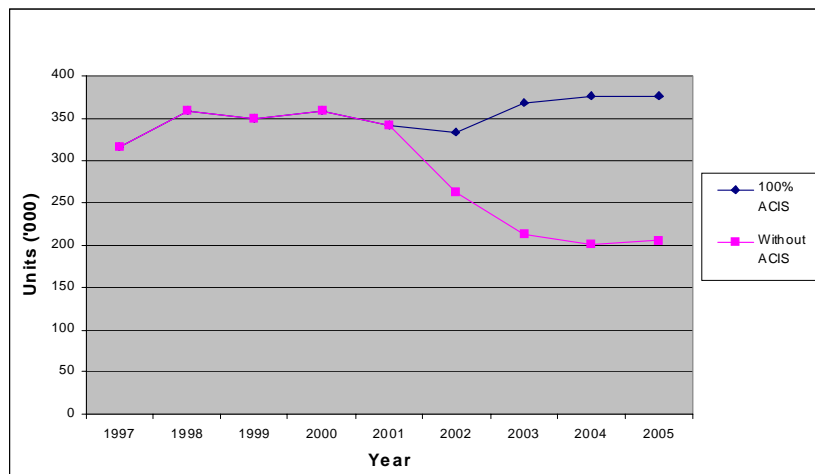
A recent study (Deloitte Touche Tohmatsu 2002) commissioned by FCAI, involving all four Australian vehicle manufacturers, indicates ACIS is having a substantial impact on activity levels in the Australian automotive industry.

In broad terms, the study reached a number of important conclusions about the impact of ACIS on vehicle producers, which can be summarised as follows:

- ACIS is likely to provide a crucial underpinning to the ability of vehicle manufacturers to attract and maintain investment by their parent companies and international shareholders. As Figure 3.1 suggests, in the absence of ACIS, production of vehicles would have been projected to decline by around 170,000 units a year over the period to 2005.

Figure 3.1

IMPACT OF ACIS ON MVP PRODUCTION VOLUMES

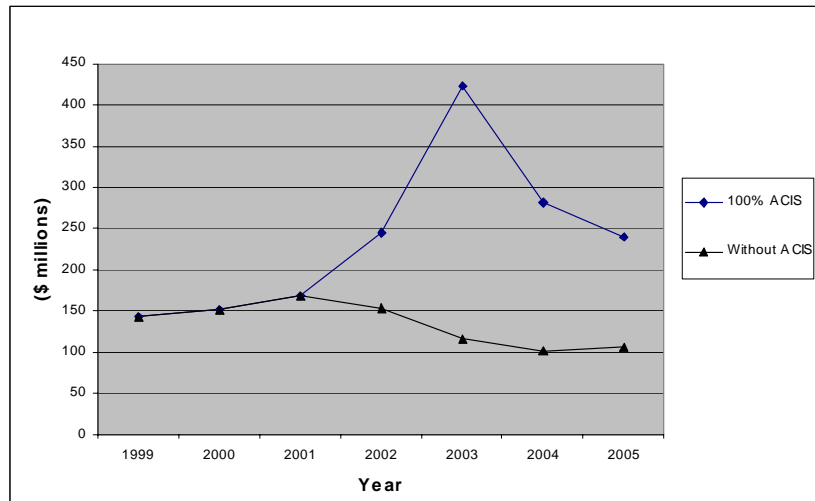


Source: Deloitte Touche Tohmatsu, 2002.

- ACIS is critical to vehicle producers winning global mandates to undertake major new investments in Australia.
- ACIS benefits are proving effective as an incentive for increased R&D undertaken by vehicle producers, even though ACIS in its current formulation does not directly reward ‘own use’ R&D undertaken by vehicle producers. Figure 3.2 shows the possible impact of ACIS on total projected R&D expenditure to be undertaken over the period to 2005.

Figure 3.2:

IMPACT OF ACIS ON MVP R&D EXPENDITURE



Source: Deloitte Touche Tohmatsu, 2002

- ACIS is aiding the industry's transition to a freer regional trade environment. Vehicle producers expressed confidence that they would be able to further increase exports and operate at more economic volumes as international markets open up.

Consistent with these results, it is arguable that ACIS credits earned for other activities are fungible and have already been effectively directed toward an increased level of planned R&D activity. Indeed, the Productivity Commission in its recent Position Paper, providing preliminary findings for its recent inquiry into post-2005 automotive industry assistance arrangements concluded that:

"It may not matter a great deal whether the basis for earning credits is related to production as opposed to spending on investment and R&D. Firms typically invest in plant and equipment and R&D in order to boost the value/profitability of their output.

The current flexibility in ways to earn duty credits allows firms to make expenditures in a manner which best meets their adjustment needs. Changing the basis of credits solely to say R&D could, for instance, disadvantage those firms which had already brought forward their R&D in response to the current ACIS incentives and are now ready to commit to new plant and equipment. This could distort firms' capacity to make the most effective use of funds in supporting their transition to the lower assistance environment."

Productivity Commission, 2002, p.128

Notwithstanding these comments, the industry has supported consideration being given to ways of increasing the innovation focus of ACIS, including through possible inclusion of direct support for own use R&D by motor vehicle producers.

The adequacy of the R&D tax concession

The key generic means of support for increased business investment in R&D in Australia is the R&D tax concession.

The R&D tax concession currently provides a 125 per cent deduction for eligible expenditures. In addition, the Government recently introduced a premium level of deduction, at a rate of 175 per cent, for R&D over and above levels undertaken on the basis of a three moving average of past expenditures.

Over recent years, the level of incentive provided by the R&D tax concession has been diminished by the reduction in the rate of the concession from 150 per cent to 125 per cent and as a result of the reduction in the company tax rate from 36 per cent to 30 per cent.

Under current arrangements the concession provides an after-tax benefit of just 7.5 cents per dollar of R&D, compared with a previous maximum (nominal) incentive of 23 cents in the dollar.

Despite the recent introduction of the premium 175 per cent tax concession for incremental R&D, it is unclear whether this will prove an effective or relevant incentive for the automotive industry.

The Productivity Commission (2002, p.61), has recently highlighted concerns within the industry about the adequacy of the R&D tax concession to meet the needs of producers in the automotive industry and has indicated a preliminary finding as follows:

“The performance of Australia’s general support measures for R&D should be reviewed within five years. Such a review should aim to ensure that there is appropriate general support available for R&D undertaken by Australian industries – including by the automotive industry after the specific support provided through ACIS ceases.”

Productivity Commission, 2002, p.63.

FCAI supports the general thrust of the Commission’s comments on this issue.

Chapter Four

Industry Growth Aspirations

The Australian automotive industry has, in recent years, demonstrated considerable success in responding to a number of challenges presented by the changing global and local operating environment. This has required the industry to alter many of its practices in order to increase its capacity for product and process development and to achieve higher levels of operating flexibility. In the space of just two model cycles, since the late 1980s the industry has achieved major improvements in these areas.

The industry has had some noticeable recent successes in building exports and, recently, in introducing new model variants. Integral to the repositioning of the industry has been the success in making improvements to its cost and quality competitiveness and its ability to engineer desirable products.

However, despite improved costs and quality competitiveness the industry has also been struggling to maintain a viable level of domestic market sales of locally manufactured products. The industry has not been able to capture greater locally manufactured sales as the overall domestic market has grown.

Intense import competition, a proliferation of available models in each market segment and low margins in the fleet sale market have all combined to undercut the domestic market sales base available to local vehicle manufacturers.

The industry now stands at the threshold of a period of strong sustainable growth. However, realising its ambitious growth aspirations will not be easy. This chapter considers the key opportunities for the Australian automotive industry and the challenges that will need to be overcome if these opportunities are to be realised.

Key opportunities for the Australian automotive industry

Innovation and international competitiveness are necessary if the Australian automotive manufacturers are to secure new investment from global parent companies. However, it should be noted that access to a viable domestic sales base is, and will remain, an essential prior condition for securing new investment.

Such new investment will in turn allow the Australian industry to translate its innovation capabilities and international competitiveness into sustainable growth.

The Australian automotive industry has been actively building the innovation capabilities that are essential if it is to develop new and desirable products tailored to meet customer demands both in Australia and overseas. Similarly, for a small open developed country such as Australia, international competitiveness revolves around high level skills in flexible manufacturing. Flexible manufacturing skills, which leverage capabilities in innovative product and process design, are essential to the industry's ability to produce a range of different vehicle variants (from a small number of base platforms) in relatively low volumes and to world class quality and cost standards.

The Australian industry has embraced the challenge to build these capabilities and its strong recent export performance, and the success of niche 'variant' vehicles such as utilities and the Monaro, highlights the benefits of a strong focus on product innovation and manufacturing flexibility.

However, it should be noted that international competitiveness refers to more than just the competitiveness of the industry itself. It also entails the competitiveness and attractiveness of the Australian investment climate and the degree of international market access available to Australian automotive producers. The current policy settings in Australia mean that the investment climate is competitive with that in many other locations. However, lack of progress in terms of improving international market access could detract from Australia's future desirability as an investment location. Policies that restrict the size of the Australian vehicle market may also reduce the attractiveness of investment in the Australian industry.

It is only through the combination of the industry building competitive strengths in innovation and flexibility and the existence of a globally competitive policy environment that future industry growth can be secured.

The industry now has the opportunity to build on recent improvements to establish Australia as a recognised centre for automotive product development and production. Strong industry growth will follow the establishment of Australia as:

- a recognised centre of innovation;
- possessing high levels of skill in flexible manufacturing; and
- a country with an internationally competitive investment climate.

Becoming a centre for automotive manufacturing and exports

Leveraging product development capabilities and skills in flexible manufacturing are necessary conditions for Australia to become a centre for automotive manufacturing and exports.

A significant increase in domestic market sales is possible as the industry expands its product offerings to better meet local market demand. This expansion in model variants relies upon taking advantage of flexible manufacturing and product development skills to make more niche vehicle variants from common platforms. The Holden Monaro; Ford and Holden's utility variants; Toyota's production of the Camry and Avalon on one assembly line; and Mitsubishi's production of the Diamante for the US market, demonstrate the growing ability of the Australian industry to efficiently produce a range of model variants with relatively small volumes. The planned introduction of new sports utility models by several manufacturers will further build the industry's product range and open up new opportunities for increased domestic sales volumes.

Increased export sales are also a major potential avenue for industry growth. However, the continuation of the strong recent export performance achieved by the industry will almost certainly require the development of new export markets. The Chinese and ASEAN markets present a significant export opportunity for the Australian industry if improved access to these markets is secured through either multi-lateral or bi-lateral trade agreements. The expansion of exports to the US, South Africa and entry to South American markets are further avenues for export growth.

Becoming a design and engineering hub for the Asia Pacific region

A pay-off from building innovation capabilities, and having those capabilities recognised by the world's leading automotive companies, is that Australia can become a centre for design and engineering of automotive products in the Asia Pacific region. Already Holden is a major exporter of design and engineering services into Asia. There is the potential for other Australian vehicle manufacturers to build a similar position for themselves within their parents' global networks.

Challenges in increasing innovation

Continued expansion of innovation capabilities through the industry relies upon access to a sizeable engineering skills pool. A shortage of new engineers, who have been appropriately trained in the use of the latest computing tools, would severely restrict the future growth of the industry. In the future, not only will the four vehicle manufacturers be generating greater demand for such skilled workers, but components and tooling producers will also increasingly be requiring greater innovation capabilities to allow them to work in partnership with the vehicle manufacturers in the development of new products and processes. A run down in Australia's engineering skills base must be avoided.

While Australia will not be a major global centre for basic research into new technologies such as fuel cells and telematics, there is the opportunity for the Australian industry to take up and adapt research being done in these areas. Globally competitive levels of support for research, but perhaps more importantly for product development, should be in place to encourage the industry to continue to invest in product innovation in Australia.

Conclusions and policy implications

This submission has considered some of the recent and likely future influences that global innovation in new product technologies is likely to have for the international automotive industry.

The automotive industry in Australia must respond to these trends and position itself to remain competitive to attract new and increased investment from global parent companies in the future. To achieve this the Australian automotive industry will need to build on recent successes and continue to strengthen its capabilities in flexible manufacturing and build its credentials as a potential design and engineering hub servicing the Asia Pacific region.

Competitive policies that provide a competitive incentive to undertake applied innovation and R&D in Australia will continue to play an important role in underpinning renewed investment in the Australian automotive industry. To this end, FCAI supports the following policy recommendations:

Recommendation 1:

The Automotive Competitiveness and Investment Scheme (ACIS) should be renewed to provide ongoing competitive investment and transitional support for at least a further five years, beyond 2005.

FCAI believes that some modifications may need to be made to strengthen the effectiveness of a renewed scheme. In particular, consideration should be given to ways of enhancing support for future investment and innovation in the industry.

Recommendation 2:

The Government should undertake a review of the performance of Australia's general support measures for R&D within the next five years. Such a review should ensure that there is appropriate general support for R&D undertaken by Australian industries – including the automotive industry.

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