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Executive Summary

This industry skills report has been developed by Automotive Training Australia Limited to cover skills issues associated with the automotive industry. The report suggests strategies to address future skills needs, with a particular focus on training requirements.

Automotive Training Australia Limited (ATA) is essentially concerned with the skilling of the automotive industry, including the automotive manufacturing sector and the very large retail, service and repair sector of the industry. There is very close integration between the two sectors with the retail, service and repair sector being intimately involved in all aspects of a vehicle's life-cycle after it leaves the factory. A recent development is the inclusion of training activities in the highly competitive and specialised area of Motorsport.

ATA also has responsibility for closely related activities including outdoor power equipment, farm machinery, bicycles, and recreational boating.

The automotive industry is a major sector of the Australian economy with an annual turnover exceeding \$145 billion and employment in excess of 400,000. Over 100,000 individual businesses are represented in the industry.

Manufacturing

Four companies manufacture passenger motor vehicles and derivatives. They are supplied by more than 200 component manufacturers. This sector of the industry is a significant exporter with automotive exports of nearly \$5 billion in 2006; forecast to rise to over \$7.5 billion in 2009.

The manufacturing sector's outstanding export performance demonstrates its ability to be a global player in a highly competitive industry producing high value consumer goods. Continuous technological and productivity improvements characterise the sector, and employee training and development is a key success factor in enabling this industry sector to achieve its success. Employment levels are not expected to increase to any degree in this industry sector due to continuing technological and productivity improvements, and some offshore resourcing of component production.

Retail, Service and Repair

This sector includes vehicle retailing largely conducted through franchised dealer networks, vehicle maintenance through regular servicing, repair of damaged vehicles, supply of aftermarket equipment, vehicle recycling and disposal and Motorsport. It also includes the ancillary areas of outdoor power equipment, farm machinery, bicycles and recreational boating.

The retail, service and repair (RS&R) sector is a significant employer, with over 315,000 people employed in 2004-05, and is forecast to grow at around 2% per annum. Growth is generated by the continuing expansion of the domestic vehicle market which has grown by nearly 25 percent over the past four years, and is expected to continue growing, albeit at a slower rate.

Drivers of Industry Skills Needs

The major sectors of the automotive industry are impacted by many of the potential drivers of skills needs. In particular, consumer and customer service demands, market expansion, competitiveness and productivity demands, health and safety issues, technological advancement, globalisation, regulatory compliance and employee attraction issues continue to impact on the skills needs of the industry.

Consumer and customer service demands are a key driver of skills needs in all sectors. Motor vehicles are a high value consumer product. Customer expectations are very high at all stages of the product life cycle from initial purchase through regular maintenance, and repair, if necessary. These expectations must be met by the organisations and employees providing the products and service.

Market expansion is apparent in the continuing growth of the domestic vehicle market, together with the industry's excellent export performance. This growth is projected to continue, resulting in a continuing demand for skills, particularly in the retail, service and repair sector.

Competitiveness and productivity demands, together with globalisation have been and will continue to be continuing drivers of skills development in the manufacturing and component sectors. The industry is globally competitive, and workforce training has been directed towards an integrated approach to continuous improvement.

There is a continuing demand for safety skills training which has steadily evolved into proactive approaches to safety in the workplace.

Technological advancement is continuing at an incremental pace in the major industry sectors. Change of exponential proportions is predicted for the future. In the manufacturing and component sectors, this is an integral part of the continuous improvement process. In the RS&R sector, technological improvements occur at a rapid pace in the industry's products, placing increasing demand on higher level problem diagnosis and repair, supplemented by routine maintenance skills.

The trend of regulatory, technical and other changes is expected to be sustained into the future, and consequently the ability to acknowledge current and pending regulatory changes is a critical part of skills development within the industry. Regulatory compliance is time consuming and requires that employees are skilled at interpreting the regulations to reduce the amount of time spent on these functions.

Employee attraction and retention is a significant issue in the RS&R sector of the industry, and is exacerbated by a general shortage of skilled employees and tradespersons. Small businesses are dominant in this industry sector, and turnover is high, often due to “poaching” by other employers. While new entrants want training provided by their employers, the high staff turnover rates mean small business are often reluctant to invest in training.

Planning For the Future

The drivers of industry skills needs outlined above have generally been recognised by the industry for some time, and, in most cases appropriate responses have been incorporated into training requirements. Some of the major areas that require additional urgent attention include:

For Industry

- In the RS&R sector, continuing to develop strategies to address the skills shortages issues. Strategies under review include:
 - Workforce structural issues, where an increasing emphasis is being given to developing smaller numbers of skilled specialists who can concentrate on specialised analysis and diagnosis required with the rapid technological development in the industry’s products. These specialists are being supplemented by other workforce levels performing more routine maintenance and repair work.
 - Reductions of time periods for completion of apprenticeships provided learning outcomes are not affected.
- Recognising the need to keep skills development in line with the rapid technological changes occurring in the industry.
- In the RS&R sector, continuing to develop attraction and retention strategies to make the industry more attractive to younger people.
- Continuing to develop active partnerships with providers to ensure that industry needs are better met, and also to ensure that providers remain up to date with rapid technological change.
- Providing support for VET in Schools programs.

- Addressing the workforce ageing and gender imbalance issues apparent in the industry.

For the Training System

- Recognising that industry – provider partnerships are critical to enable providers to keep abreast of technological developments. This includes continuing professional development for RTOs.
- Recognising the ageing workforce issues, particularly in the public provider sector.
- Greater implementation of flexible delivery modes.
- Increasing the priority given to national consistency and quality in the application and interpretation of Training Packages.
- Providing clear information about career paths to enable informed employment and education choices.

For Automotive Training Australia Limited

- Obtaining recognition of ATA as an Industry Skills Council, given the size of the automotive industry, and its expanding contribution to the Australian economy.

1 Purpose

This industry skills report has been developed by Automotive Training Australia Limited (ATA).

The purpose of this report is to engage the industry around current issues and how these issues affect the future skills base for the industry. The report also suggests strategies to address future skills needs. These strategies have a particular focus on training requirements.

This report has been designed to assist industry, training providers and training policy makers, and it is intended that the report will be updated each year to reflect contemporary developments.

This report focuses on the following sectors of the automotive industry:

- Automotive manufacturing
- Automotive retail, service and repair
- Automotive aftermarket operations
- Component and vehicle recycling and disposal
- Motorsport

Automotive Training Australia Limited also has responsibility for the following closely related activities:

- Outdoor power equipment
- Farm machinery
- Recreational boating
- Bicycles

Recognition of ATA as an Industry Skills Council

ATA has been in a position of limbo for some years. It has not been recognised as an Industry Skills Council despite overwhelming support from all industry participants.

This report emphasises the strong synergies that exist right through all sectors of the industry representing the automotive industry value chain. For this reason, the ***industry's very clear position is that one body should be responsible for vocational education and training through all sectors of the industry.***

It is pertinent to note that one of the industry's training packages on its own accounts for nearly 8 percent of all apprentices and trainees nationally, and ranks number four of the top 20 most used training packages.

ATA also notes that the recent House of Representatives Standing Committee on the Automotive Components Industry included the following in its list of recommendations:

“Recommendation 2

The Committee recommends that, as a matter of priority, the Department of Education, Science and Training clarify the position of Automotive Training Australia and Manufacturing Skills Australia in representing the needs of the automotive components industry.

The Committee further recommends that the Department of Education, Science and Training review the status of Automotive Training Australia giving consideration to:

- Its position with or as an industry skills council;*
- Its capacity to adequately represent the training needs of the sector; and*
- Measures to ensure there is equitable involvement and representation of industries across the automotive supply chain.”¹*

¹ *Shifting Gears* Employment in the Automotive Components Manufacturing Industry, House of Representatives Standing Committee on Employment, Workplace Relations and Workforce Participation, Canberra, December 2006

2 Industry Profile

The automotive industry is a major sector of the Australian economy with an annual turnover exceeding \$145 billion and employment in excess of 400,000. Over 100,000 individual businesses are represented in the industry. The major sectors of the industry are:

Sectors	Activities	ANZSIC ² Industries
Automotive Manufacturing	Motor vehicle manufacturing Vehicle body manufacturing including trucks, buses and trailers Vehicle component manufacturing Manufacture of heavy duty off-road equipment	2811 Motor vehicle mfg. 2812 Motor veh. body mfg. 2813 Automotive electrical and instrument mfg. 2819 Automotive component manuf. n.e.c.
Automotive Retail, Service and Repair sector	Distribution and retailing of motor vehicles Distribution and retailing of motor cycles, trailers and caravans Retailing of tyres Product servicing Repair of damaged products Retail, servicing and repair of related products including aftermarket equipment, bicycles, and outdoor power equipment	5311 Car retailing 5312 Motor cycle dealing 5313 Trailer and Caravan Dealing 5321 Automotive fuel retailing 5322 Automotive electrical services 5323 Smash repairing 5324 Tyre retailing 5329 Automotive Repair and services n.e.c.

² Australian and New Zealand Standard Industrial Classification. Source: ABS: Manufacturing Industry - 8221, 2001-02 and 2002-03, ABS: Retail Industry – 8622, 1998-99

Motor Vehicle Manufacturing

Four Australian based vehicle companies – Ford, Holden, Mitsubishi and Toyota produce a range of passenger vehicle models (and derivatives of those models) at seven plants in Melbourne and Adelaide:

- Locally produced passenger vehicles accounted for 25.0% of the domestic passenger vehicle market in 2006, while locally produced light commercial and sport utility vehicles accounted for 15.0% of this market segment.
- The industry is a **significant exporter of cars, engines and other components**. The industry exported 133,000 vehicles in 2006, down slightly from the record total of 142,367 vehicles in 2005. In 2005, automotive exports, including components exceeded \$5 billion, and in 2006 the total was \$4.9 billion. Exports are forecast to rise to about \$7.5 billion in 2009.
- The industry has steadily been transitioning to a focus on both design and manufacture. Design initiatives are aimed both at developing broader export capabilities and at being world development centres for particular car programs.

Vehicle Importers

40 companies imported 761,043 vehicles into Australia in 2006. The importation of motor vehicles generates a substantial employment base in its own right through the retail networks.

Bus, Truck & Trailer/Heavy Duty Off-Road Segment

- These segments of the industry include varying degrees of local manufacture and/or assembly and full importation of vehicles. Companies such as Iveco, Volvo Commercial Vehicles Australia and Paccar operate local plants to assemble specialised trucks to order; utilising overseas and locally sourced components.
- Local companies such as Volgren manufacture and build bus and coach bodies onto imported chassis.
- In the heavy duty off-road sector, Caterpillar is a significant employer involved with both its own plants and those of distributors such as Westrac in the assembly and maintenance of heavy duty off-road equipment.

Component Producers

- There are more than 200 firms producing automotive components for use as original equipment in new vehicles and for the replacement and accessories markets. There are also several hundred (mainly small) firms producing components and accessories exclusively for the aftermarket.
- There are around 500 mainly small firms providing specialised tooling to vehicle and component producers. Vehicle and component producers also have some in-house tooling capacity.
- Turnover in the automotive component producer segment exceeds \$7 billion per annum. Nearly 30,000 people are employed in this industry segment.
- The component sector is inextricably linked to the local vehicle manufacturing sector. “The fortunes for component producers are highly integrated with those of the vehicle producers. In 2004, 91% of total component sector sales, valued at \$7.1 billion were to the Australian motor vehicle producers. Component sector sales increased to \$7.3 billion in 2005, but domestic sales to the motor vehicle producers dipped slightly to approximately 90% of the total.”³

Investment, Research and Development in the Manufacturing and Component Sector

This sector of the industry is a significant investor in both product development (illustrated by GM Holden’s investment of over \$1 billion in the latest Holden Commodore and derivatives) and in research and development. Examples include:

- Robert Bosch diode manufacture
- Ford Territory development and production
- Toyota Technical Centre - Australia (TTC AU)
- Air International Global Technology Centre
- Siemens VDO component manufacture and design facility
- Ford Australia’s design and engineering project for a global utility truck

Companies such as i-Glass, Ceramet and NICTA are working on advanced research projects for new technologies including short range radar, intelligent glass and high temperature light weight materials.

³ Shifting Gears – Employment in the automotive components manufacturing industry – House of Representatives Standing Committee on Employment, Workplace Relations and Workforce Participation, p. 29

The Retail, Service & Repair (RS&R) Sector

The Retail Dealer Network

Motor vehicle manufacturers and importers sell their products through predominantly independent franchised dealer networks. The Motor Trades Association of Australia noted that in December 2005 there were 1323 dealers in 1716 locations covering 2400 franchises with 51,931 people employed.⁴

These figures demonstrate that dealers are significant employers in their own right. Many skills are required and there are established career paths through to supervisory and management positions. Dealers carry out six primary activities:

- New vehicle sales
- Used vehicle sales
- Servicing of products (in some instances including damage repair facilities)
- Sale of spare parts and accessories
- Financing and insurance of product sales
- General management and administration

Although the vast majority of dealers are essentially independent businesses, very close *linkages* with the manufacturers and importers exist through franchise arrangements. Similarly, training and development needs are closely linked to the manufacturers and importers.

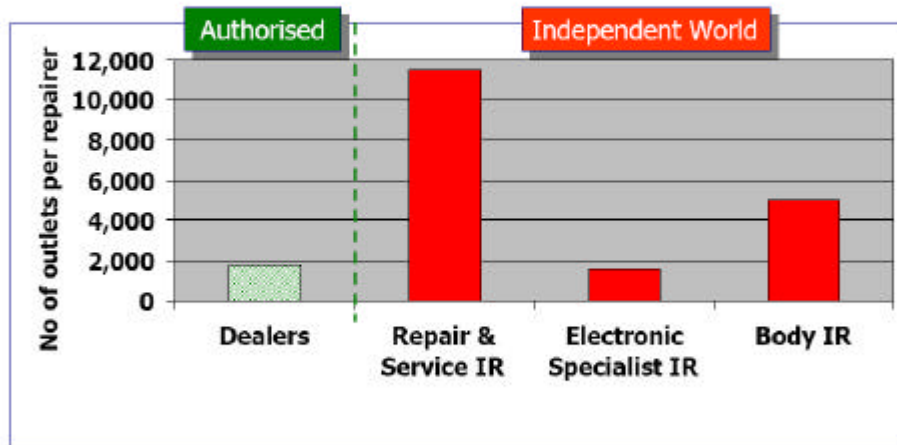
Service and Repair segments

Motor vehicles require regular maintenance. Service requirements are delivered both through the service sections of the retail dealer networks, and the independent aftermarket service providers. These include local workshops, some service stations, specialised outlets such as Ultratune and mobile organisations like Lube Mobile.

The size of this sector is illustrated in the following chart prepared by ICDPA (Independent Car Distribution Project Australia). It shows the number of independent repairers compared to the franchised dealers:

⁴ Motor Trades Association of Australia *MotorData* 2006

Number of players in after-sales Outlets by repairer types



Source: ICDPA

© ICDPA, 2007

The increasing segmentation in the industry is spawning a number of specialist enterprises. The Victorian Automobile Chamber of Commerce published a report⁵ on segmentation in 2002, which outlines the degree of specialisation and its implications for the industry, including training requirements.

Some specialists concentrate on specific vehicle functions. Examples include Midas (exhaust systems), Fluidrive (automatic transmission repairs), Bridgestone (tyres) and member companies of the Vehicle Air Conditioning Specialists of Australia (VASA).

The second major segment in this industry sector is the repair industry, essentially aimed at accident repairs. Three major functions are carried out: body repairs, mechanical repairs and spray painting.

The service and repair segments are geographically dispersed and include a large number of predominantly small businesses.

⁵ Skills and Segmentation in the Retail Motor Industry (2002)

The Aftermarket segment

The automotive aftermarket industry is an important component of the overall automotive industry. It turns over \$7 billion annually and employs over 25,000 people.

The aftermarket segment includes:

- Manufacturers engaged in the manufacture or re-manufacture of automotive parts, accessories, tools and equipment for local and/or export markets. ARB is a significant player in this category, both in local and export markets.
- Distributors, including companies engaged in wholesaling, importing warehousing, or acting as manufacturers' agents.
- Retailers, including independent or group stores engaged in the retailing of parts, accessories, tools and equipment. Examples include Supercheap Auto and Kmart Auto.

Component/Vehicle recycling and disposal segment

This activity is likely to achieve increasing importance as greater emphasis is placed by the Government and industry on the need for effective recycling or disposal of the industry's products at the end of their lifecycle.

More than 300 automotive parts recyclers operate around Australia in a geographically dispersed segment of the industry.

Motorsport

ATA has developed specific Motorsport elements within the Retail, Service and Repair Training Package (AUR05). This reflects the growth of the sport within Australia, and more importantly, the demands it creates for highly skilled specialists.

Motorcycles

Motorcycles represent an important and growing sector of the automotive industry. In 2005, sales exceeded 100,000 for the year, representing a growth rate of 14% from the previous year. Sales are projected to increase, particularly in the motor scooter segment, in response to rising fuel prices and traffic congestion in capital cities.

Synergistic Industry segments

Smaller related industry segments cover:

- Outdoor power equipment
- Farm machinery
- Recreational boating
- Bicycles

These segments represent a microcosm of the larger industry segments, and they face many similar issues. Taking the bicycle industry as an example, it is noted that sales of bicycles have grown rapidly in recent years, and now run at over 1.2 million per annum – significantly greater than the number of new motor vehicle sales each year. Growth is forecast to continue. The technology being incorporated into new bicycles is amazing. Many in the higher price brackets require specialised servicing with unique tools to carry out these functions.

Occupational Coverage

Specific sector occupations include the following:

Sector	Examples of Occupations
Vehicle manufacturing and component producers	Engineers and other professional occupations Toolmakers Electricians Assemblers Spray painters
Vehicle importers	Salespeople Technicians Warehouse operators
Bus, Truck, and Trailer/ Heavy duty off-road segment	Assemblers Motor body builders Welders Diesel fitter Heavy vehicle technician
Retail dealers	Salespeople Customer service receptionists Technicians Parts interpreters
Service and Repair Aftermarket	Motor mechanics Automotive electricians Panel beaters Spray painters Aftermarket salespeople Warehouse/ distribution operators
Recycling and disposal	Vehicle body dismantlers
Bicycles, outdoor power equipment, recreational boating	Salespeople Bicycle mechanics Marine mechanics Outdoor power equipment mechanics

Training Packages

ATA is responsible for the following Training Packages:

Training Package	Description
Automotive Retail, Service and Repair Training Package (AUR05)	Covers passenger, commercial and heavy duty vehicle retailing, parts warehousing and sales, aftermarket operations, vehicle servicing, collision repair, spray painting, recycling, disposal, and motorsport, together with retailing, servicing and repair of bicycles, outdoor power equipment and recreational boating.
Automotive Manufacturing Training Package (AUM00)	Covers all aspects of vehicle manufacturing including vehicle development and testing, manufacture of body components and engines, assembly of motor vehicles, plant and equipment maintenance and spare parts warehousing and distribution. The package extends from passenger motor vehicle manufacturing through to the bus, truck and trailer group

The Retail, Service and Repair Training Package was ranked number five out of the top 20 most used Training Packages in relation to commencements and number 4 in relation to numbers in training for the March quarter 2007.

The RS&R Training Package has been extensively updated and implemented in all States and Territories. A continuous improvement process is in place with monitoring occurring through a website. A widely representative Steering Committee oversees the continuous improvement process. The Committee meets quarterly.

The Automotive Manufacturing Training Package was finalised in November, 2006. It is anticipated that the package will be formally endorsed in the first quarter 2008.

3 Employment Trends

In this section, and some later sections, extensive use is made of labour market forecasts made by the Monash University Centre of Policy Studies (COPS). The COPS system has been used since 1994 to provide a biannual briefing service to government agencies responsible for vocational education and training in Australia. The tables are based on the latest available COPS data. The National Centre for Vocational Education Research (NCVER) has made some important observations about findings from macro-economic models like the Monash model. These highlight the difficulties in forecasting future demand for individual skills. The qualifications are noted in the footnote.⁶

In 2004-05 the automotive industry provided 434,000 jobs or 4.4 percent of Australian employment.⁷

The retail, service and repair sector is the dominant employment source with over 316,000 employees or 73 percent of total industry employment. Within this sector, vehicle services employs 200,000 people, reflecting the unique nature of the industry's products which require ongoing maintenance and often repairs as a result of accidents.

⁶ "Uncertainties in demand forecasts

It is extremely difficult, in both theory and practice, to forecast how the demand for labour is going to evolve—beyond a few years into the future. Economies are complex and dynamic and are affected by many forces that cannot be predicted with any confidence. Major influences on the economy include: new technology; the macroeconomic state of the domestic economy and of the economies of trading partners; the amount of capital investment and its distribution between industries; changes in governmental policy; and the interaction of these factors. The changes in demand for skills reflect technological innovation, the strategies that industries adopt to increase productivity, and the tastes of eventual consumers. Even the best of the forecasting models do only a moderate job of projecting total output and employment for a number of years into the future. Their accuracy falls rapidly as the projection horizon extends, as the types of skills become more disaggregated, and as projections are made by region.

Despite the difficulties, many OECD economies, including Australia, have models of their economies which they use to project employment by quite disaggregated levels of skill. These models are complex, large and dynamic. The one most widely used in Australia for skills forecasting is the MONASH model, which ranks as one of the best of its kind in the world. It is difficult to evaluate the accuracy and reliability of the forecasts of such models, because such evaluations can only occur some time after the forecasts are made. Where there have been evaluations, they generally conclude that the models are of some value, but mainly as indicators of overall trends and interdependencies. When they are used to forecast the growth in occupations in any detail, they are often out by 10 or 20% within a few years. Our own comparisons of projections with outcomes for the MONASH model confirm that, over a nine-year period, its projections diverged substantially from the actual outcomes for a number of occupations. Indeed, even at the major occupational group level, the direction of change was in some cases incorrect—projecting growth when there was decline and vice versa. This inaccuracy is a reflection of the difficulty of the task." Source: NCVER 2007: Forecasting future demands – What we can and cannot know, p. 11

⁷ Source: Monash Centre of Policy Studies, September 2005

Monash Centre of Policy Studies, September 2005

Employment forecasts, Automotive Industry, 2004-05 to 2012-13

Industry	Employment 2004-05 ('000 persons)	Employment 2012-13 ('000 persons)	Total change 2004-05 to 2012-13 (%)	Average annual growth 2004-05 to 2012-13
Motor vehicle manufacturing	117.2	121.5	3.67	0.4
Motor vehicle parts	79.7	81.6	1.63	0.2
Other transport equipment	37.5	39.9	6.39	0.78
Retail, service and repair	316.4	369.3	16.2	2.09
Motor vehicle wholesaling	40	47.3	18.3	2.12
Motor vehicle retailing	76.4	89.3	16.91	1.97
Motor vehicle services	200	232.7	16.34	1.91
All automotive	433.6	490.2	13.05	1.63
All industries	9800.0	10951.2	11.75	1.40

Employment growth in the automotive industry is forecast to continue at a rate exceeding the national average employment growth rate. The retail, service and repair sector will generate the highest employment growth, due mainly to steady growth in retail demand for motor vehicles. The vehicle services sub-sector will see an additional 32,000 jobs by 2012-13. Vehicle servicing has exhibited continuing skills shortages for several years. There is obvious potential for these shortages to be exacerbated, given the forecast growth rates. The table includes the estimated employment levels for 2004-05 based on ABS surveys and the forecast for 2012-13.

Using ASCO classification data, the following table presents forecasts for major occupational areas found in the automotive industry. The forecasts are for persons employed in these occupational areas in all Australian industries and do not necessarily represent expected employment in these categories in the automotive industry.

Employment forecasts, selected occupations, 2004-05 to 2011-12

Occupation	Employment 2004-05 ('000 persons)	Employment 2012-13 ('000 persons)	Total change 2004-05 to 2012-13 (%)	Average annual growth 2004-05 to 2012-13
Engineering, Distribution and Process Managers	126.3	166.3	31.69	3.5
Sales and Marketing Managers	114.8	153.9	34.09	3.73
Sales, Marketing and Advertising Professionals	84.6	108.7	28.4	3.17
Mechanical engineering tradespersons	120.4	124.5	3.41	0.42
Automotive tradespersons	135.9	144.9	6.62	0.8
Intermediate Sales and Related Workers	157.8	191.3	21.23	2.44
Miscellaneous intermediate production and transport workers	198.8	228.6	15	2.44
Total all occupations	9800.0	10951.2	11.75	1.4

Source: Monash Centre of Policy Studies, September 2005

One critical area in the table is the forecast growth rate of automotive tradespersons, an area where significant skill shortages have been identified. The issue is discussed in other sections of this report.

The following table outlines estimated employment levels across states and territories for the automotive industry as a whole, as well as the Monash forecasts for 2012-13.

Automotive industry employment forecasts 2004-05 to 2012-13 By States and Territories

	Employment Level 2004-05	Employment Level forecast 2012-13
NSW	122,300	134,000
Vic	124,300	137,400
Qld	87,970	107,480
SA	41,530	42,710
WA	43,660	52,910
Tas	6,913	7,687
NT	3,306	3,868
ACT	3,576	4,098
Australia	433,555	490,153

Source: Monash Centre of Policy Studies, September 2005

In line with the industry's overall forecast, steady employment growth is projected in all states and territories.

Motor vehicle and parts manufacturing is concentrated in Victoria and South Australia. These employment figures are included in the above table. The following table separates employment forecasts for the motor vehicle manufacturing sector. Employment in this sector in states other than Victoria and South Australia includes manufacturers of heavy duty equipment such as Caterpillar together with truck manufacturers like Volvo and Renault.

Motor vehicle and parts manufacturing employment forecasts 2004-05 to 2012-13

	Employment Level 2004-05	Employment Level forecast 2012-13
Victoria	42,000	47,000
South Australia	16,700	15,360
Other states/territories	21,000	19,240
Australia	79,700	81,600

Source: Monash Centre of Policy Studies, September 2005

The projected decline in employment levels in motor vehicle manufacturing in South Australia reflects restructuring and productivity improvements by both GM Holden and Mitsubishi and some decline in the component supplier sub-sector in that state. It is also relevant to note the contribution made by automotive manufacturing to the economies of Victoria and South Australia:

- Automotive manufacturing contributes 2.4% of South Australia's Gross State Product generating exports worth almost \$1.2 billion in the year to November and providing employment at the levels set out in the table.⁸
- In 2001-02, automotive manufacturing contributed \$2.6 billion to the Victorian state economy, representing 1.4% of Gross State Product⁹.

⁸ Shifting Gears, *op.cit.* p.29

⁹ *Ibid.* p. 29

4 Drivers of Industry Skills Needs and Skills Issues

The following table summarises the extent to which drivers of industry skills needs impact on the automotive industry:

Trends that impact on skills needs	Industry Sector	To what extent is this trend having an impact on skills needs in this industry (rating)	How the trend is impacting
Employee attraction and retention	Motor vehicle manufacturing	Medium	Some specialist skills are in short supply e.g. electricians/CAD- CAM draftspeople
	Component production	High	Greater difficulty in attracting skilled workers and tradespeople
	Vehicle retailing	High	Significant attraction and retention issues with salespeople and technicians
	Repairing including spray painting	High	Significant to severe shortages of all tradespeople, particularly in metropolitan areas, intra- industry poaching is prevalent
	Other industry segments	Moderate	

Trends that impact on skills needs	Industry Sector	To what extent is this trend having an impact on skills needs in this industry (rating)	How the trend is impacting
Demographic change	Manufacturing and component sectors	Low	No significant impact is evident
	Retail, service and repair sector	High	Evidence of people exiting the industry after 5 to 10 years leading to significant skills shortages
Consumer and customer service demands	All industry sectors	High	Customer expectations are very high, products are complex and technological change is exponential; these factors impact on skill requirements for all industry occupations
Market expansion	All industry sectors	High	Strong market expansion is evident in both domestic and export markets; employee shortages may impact on the ability to capitalise on this

Trends that impact on skills needs	Industry Sector	To what extent is this trend having an impact on skills needs in this industry (rating)	How the trend is impacting
Competitiveness and productivity demands	Manufacturing and component sectors	High	This is the world's most competitive industry; there is a strong demonstrable link between training and development of employees and their capacity to contribute to quality and productivity improvements and, therefore, competitiveness
	Retail, service and repair sector	Moderate	As above
Health and safety issues	All sectors	High	The industry has always allocated significant funds to OH&S training; Increasing costs of accidents and incidents, together with compliance requirements maintain OH&S training as a high priority

Trends that impact on skills needs	Industry Sector	To what extent is this trend having an impact on skills needs in this industry (rating)	How the trend is impacting
Technological advancements	Manufacturing and component sectors	High	The industry has to maintain world's best practice to remain competitive; technological advancements are constant and substantial
	Retail, service and repair sectors	High	Technological advances in the industry's products are exponential placing considerable emphasis on training, including the re-skilling of existing tradespeople
Globalisation	Manufacturing and component sectors	High	The industry is highly competitive globally, and local operations compete successfully in export markets; the impact on skilling is the same as for competitiveness and productivity demands
	Retail, service and service sectors	Low	Not regarded as significant for the small and medium sized enterprises in this sector
Regulatory compliance	All sectors	High	Federal and state regulations impact substantially on skilling needs for compliance

Trends that impact on skills needs	Industry Sector	To what extent is this trend having an impact on skills needs in this industry (rating)	How the trend is impacting
Insurance	All sectors	Low	Emphasis on OH and S training is the major driver
E-business	All sectors	Low	The industry was an early and substantial adopter of E-business and other "lean" productivity improver; these tools have been fully incorporated into skills development
Employment arrangements	All sectors	Low	The nature of the industry offers fewer opportunities for flexible employment arrangements

A detailed discussion of the significance and impact of the various drivers of skill needs is contained in the following sections.

EMPLOYEE ATTRACTION AND RETENTION

The retail, service and repair sector faces definite skills shortages particularly for tradespeople throughout the country. A range of strategies have been implemented, aimed at attracting and retaining new people. These need to be expanded considerably and intensified. Some skills shortages are evident in the manufacturing and component sectors.

Nationwide shortages of tradespeople continue in the RS&R sector. In some regions, these shortages are severe.

The Commonwealth Department of Employment and Workplace Relations latest skills shortage list¹⁰ reveals the following data for relevant trade categories:

Skills Shortage List – Trades		July, 2006							
ASCO	Occupation	AUST	NSW	VIC	QLD	SA	WA	TAS	NT
VEHICLE TRADES									
4211-11	Motor Mechanic	N	S	S	S	S	S	S	S
4212-11	Auto Electrician	N	S	S	S	S	S	S	S
4213-11	Panel Beater	N	S	S	S	S	S	S	S
4214-11	Vehicle Painter	N	D	S	S	S	S	S	S

N – refers to nationwide shortages

S – refers to shortages within the state or territory

D – refers to recruitment difficulties

The report also notes poor response to advertised vacancies for specialised trades such as vehicle body makers and vehicle trimmers.

Examples provided of specific shortages were:

- Motor Mechanic – NSW: shortages exist across most specialisations, including general servicing and repair, diesel motor mechanics, bus and truck mechanics and motor cycle mechanics. WA: shortages are particularly evident for truck and diesel mechanics.
- Auto Electrician – NSW Shortage is evident across most sectors, including cars, trucks and buses.

In 2006, the Victorian Automobile Chamber of Commerce published an extensive research report prepared by the Accenture consulting group entitled “Horizon 2015 – Changes and Challenges for the Australian Retail Automotive Industry.”¹¹ On the subject of skills shortages in the RS&R sector, the report concludes:

¹⁰ Department of Employment and Workplace Relations www.workplace.gov.au

¹¹ VACC. 2006

“Skills shortages have been, and are expected to continue to remain, a key issue for the automotive industry as a whole. The rapid change in technology, the additional skills required by the sector, and the relevance of skills in the existing workforce, continue to drive the current and future automotive skills shortage....”

In Australia, apprenticeship training in the engineering trades (and all other major trades) declined in the early 1990’s from the record high levels of the late 1980’s. The decline has been, and continues to be driven by poor industry career perception, poor wages and conditions, and retention problems with experienced staff. Retention rates remain an issue with over 40 percent leaving the industry five years after joining....”

This ongoing skills shortage is compounded by an ageing workforce... and rapidly changing technology.”¹²

These shortages continue to be of considerable concern to industry participants who have taken part in a number of initiatives to address the problems. Major initiatives undertaken in recent years included the National Industry Skills Initiative (NISI) program, and the related Career Industry Information Partnership Program (CIIPP). The studies concluded that the skills shortages were real and expected to continue, as confirmed in the latest DEWR skills shortages list. A number of initiatives were summarised in the final NISI report.¹³ The report noted:

“Over the past decade the industry has become acutely aware of decreasing levels of applications from new entrants to the industry and a significant ageing of its existing workforce. The retail motor industry has suffered the cyclic effects of skill and labour shortages particularly in the areas of skilled tradespeople and new apprentices seeking to enter the industry.”¹⁴

One issue of considerable concern raised in the report was the retention of skilled people in the industry. In this regard, the report notes:

“Retention rates are also an issue requiring deeper analysis, with over 40% of the workforce leaving the industry five years after joining. The industry is acutely aware of the costs and training implications associated with low retention rates amongst mature workers in the industry.”¹⁵

¹² Horizon 2015, VACC, 2006. p.29

¹³ National Industry Skills Initiative: *National Retail Motor Industry Task Force*, Final Report, November, 2002

¹⁴ Ibid. page 4

¹⁵ Ibid. page 6

A related subject not specifically covered in the NISI report is the suggestion supported by anecdotal evidence that a number of skilled people tend to leave the industry after about 20-25 years (particularly in the 40-45 age group). Research undertaken by an industry survey¹⁶ in 2002, confirms this situation in NSW. Among the causal factors for these premature exits are the physical demands of the job and concern among older employees that they are unable or unwilling to keep up with the rapid changes in technology evident in the industry.

The industry survey also suggested that wages and working conditions were significant factors in the overall loss of people from the industry.

In section 4 above, it is noted that employment levels are contracting to some extent in the vehicle and component manufacturing sectors. Consequently, there are no significant attraction and retention issues in these sectors of the industry.

SUGGESTED RESPONSES

The NISI Report identified a number of key issues and possible responses to these issues. These are:

1. *"A shrinking youth base in Australia will lead to increased competitive activities from employer and trade organisations designed to attract school leavers into their ranks.*
2. *The need for immediate exploration of the ways of attracting adults into the industry through skills cross-streaming and recognition.*
3. *Employer groups, Skills Councils/ITABs and schools need to market trade occupations in new and dynamic ways. They need to appeal to youth and their families and in particular, mothers. (The CIIPP activities confirm this).*
4. *Significant in transition between school and work are the depth and breadth of local connections between schools and industry. Local employers need to find ways to become more deeply engaged in school/career activities.*
5. *Employers need to clearly articulate what it is that they have to offer apprentices and trainees. They need to recognise that they are competing with a diverse range of attractions and options in the job market.*
6. *VET in schools is imperative to the supply of appropriate labour to the industry in the future. Without hands-on exposure to technology it is unlikely that young people will explore the potential in the trades sector.*
7. *Schoolteachers and career advisors often have outdated views of the industry. Unless these groups can gain a realistic understanding of the industry it is unlikely that they will promote automotive trades to their pupils as a viable career option.*
8. *It is unlikely that the current training models will meet the emerging needs of the industry. New models will need to be explored and tested.*
9. *The industry will need to find ways in which to retain and continually retrain and reward its existing and ageing workforce."¹⁷*

¹⁶ Reasons for the high wastage rates of trades people in the motor vehicle repair industry – ATB(NSW) Report

¹⁷ NISI Report, op.cit. pages 10-11.

Although the NISI report is now some five years old, industry participants maintain that the findings are essentially still current, and there has been little discernable improvement in attraction and retention of employees within the RS&R sector of the industry.

As noted above, the more recent VACC report draws similar conclusions. It suggests that the situation in Victoria is slowly improving in respect to apprentices.¹⁸

The report also notes that:

“The Australian Government is also advanced on plans to establish 24 Technical Colleges around Australia, with the aim of providing a high level of vocational and academic education for students in years 11 and 12. The proposed time frame sees commencement of the first colleges in 2006, with all 24 fully operational by 2008. The colleges will focus on a number of traditional trades, including automotive.”¹⁹

The industry is a strong supporter of competency based training, and recognises that proper implementation of this system will potentially lead to shorter time frames for the completion of apprenticeships and traineeships than has been the practice under a purely time based system.

A further strategy proposed by the industry is a comprehensive survey across the industry in all states and territories which would aim to provide a full analysis of factors affecting retention rates. This would serve to test the anecdotal evidence mentioned above, and would also assist in developing more concrete responses to the problems.

One issue that is of particular concern to employers within the retail, service and repair sector relates to the unavailability of funded training through the TAFE system for existing employees.

SOME SUCCESSFUL STRATEGIES:

A number of initiatives stemmed from the NISI program. One ongoing component is the successful industry careers website (<http://www.autocareers.com.au>)

¹⁸ Horizon 2015, VACC, 2006 p. 30.

¹⁹ *Ibid.* p. 30

School Based New Apprenticeships are considered to be an extremely valuable initiative to attract young people into the industry. One conclusion from the NISI report detailed above is that “VET in Schools is imperative to the supply of appropriate labour to the industry in the future.”²⁰ The industry is concerned about the different approaches to VET in Schools, including School Based New Apprenticeships, between the different States and Territories. This is evident in the substantial difference in take-up rates in the jurisdictions.

ATA believes that there needs to be multiple pathways including:

- School-based traineeships
- Full time theory-based programs
- Full time programs as part of secondary schooling leading to a tertiary entrance score based on standards from the appropriate training packages.

One School Based New Apprenticeship Program that has achieved considerable success in the automotive industry is the T3 program which originated in 2000 with a partnership between Toyota and TAFE NSW. The program subsequently extended to some other automotive companies and has moved into other states.

A number of more recent examples are found in the submissions for the ATA Annual Training Awards. The 2006 submissions included the following:

- The Caterpillar Institute in Victoria where programs utilising the RS&R Training Package are aimed at both new entrants and the professional development of existing staff. The Institute achieves world class standards utilising the latest international technologies
- Heartland Holden with 5 dealerships in NSW has a proactive partnership with TAFE NSW aimed at moving to an integrated, accelerated approach to completion of qualifications that is significantly different from traditional time based apprenticeships.
- McMahons, a large civil engineering contractor, has developed specific programs in conjunction with the Caterpillar Institute aimed at the critical areas of skills and trade upgrades to meet the rapid changes in technology in the products used by the company. This program uses the RS&R Training Package.
- The Motor Industry Training Association of Western Australia has developed an innovative assessment process aimed at fast tracking completion of qualifications.
- TAFE NSW has a pre-employment program called U turns for Youth which targets disadvantaged young people and provides them with a pre-employment program for positions within the automotive industry.

²⁰ NISI Report, op.cit. page 10

- A further pre-employment program is operated by TAFE Tasmania. The program is aimed at skills shortages in the automotive industry. One specific objective is to improve retention through to completion of the qualifications.
- Central West TAFE in Western Australia has a state of the art Autotronics laboratory providing advanced electronics and diagnostic training for automotive qualifications.

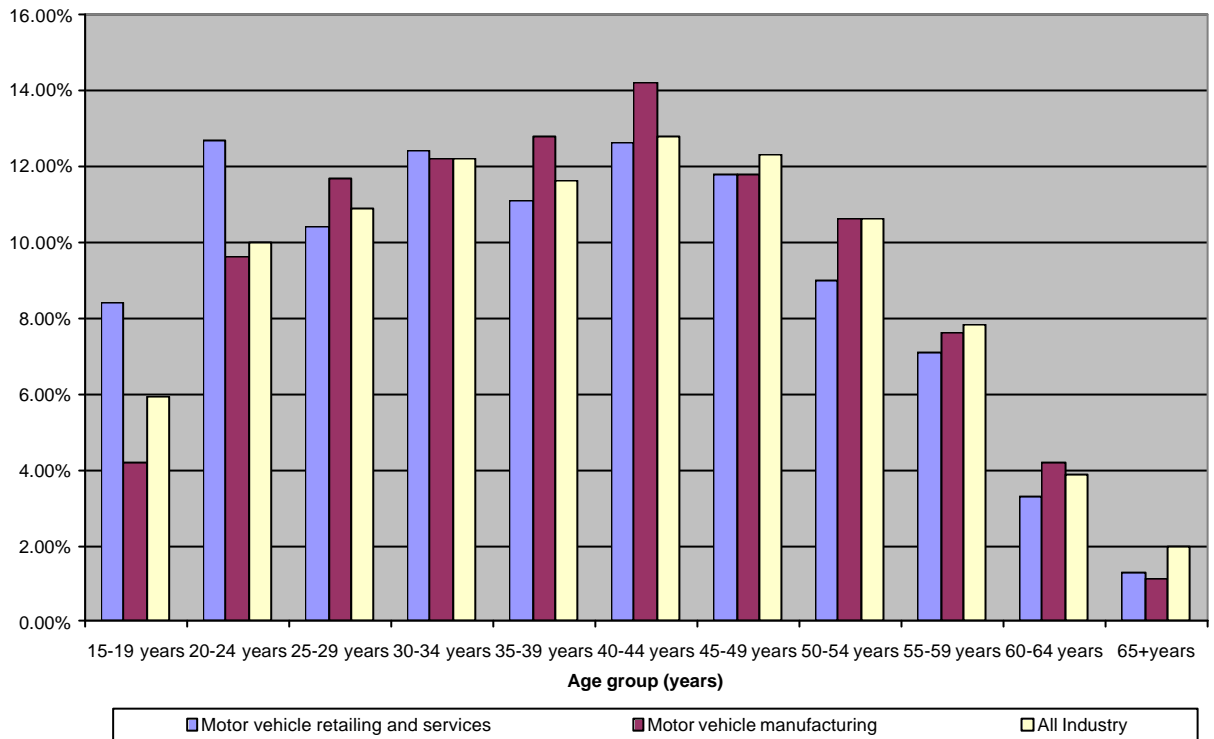
DEMOGRAPHIC CHANGES

The challenges within the RS&R sector of the automotive industry are to attract young people into the industry, and, more importantly, retain them. There is a significant gender imbalance throughout the industry with male employment dominating by almost 4:1.

The following chart shows that the retail, service and repair sector of the automotive industry has a higher proportion of younger people than Australian industry in general. This reflects apprenticeship intakes in the industry. The chart also illustrates the problem that the sector has in retaining people. From age 35 onwards, the age profile of the RS&R sector is well below the average for Australian industry. Anecdotal evidence from industry sources continually reinforces the view that young people will complete apprenticeships, stay for a few years and then exit the industry. This phenomenon was discussed in the preceding section dealing with employee attraction and retention.

Age profiles in the automotive manufacturing sector follow all industry patterns more closely.

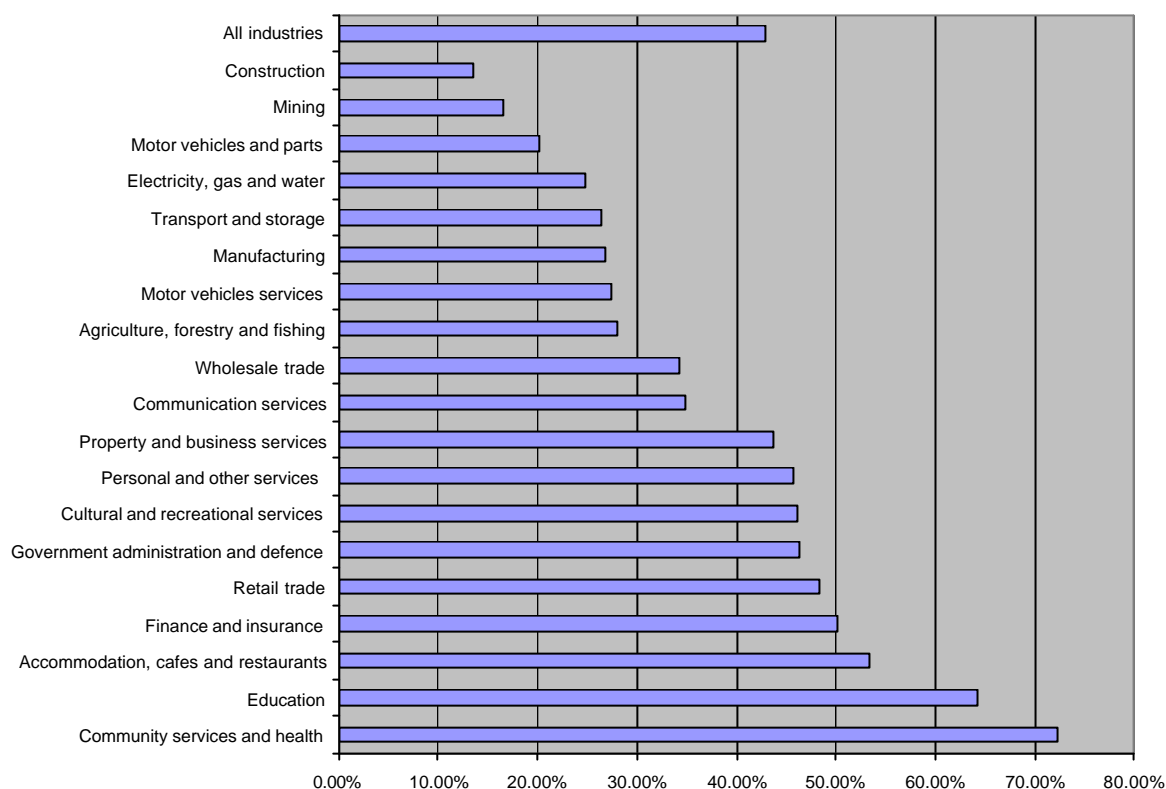
AGE PROFILE, AUTOMOTIVE INDUSTRY, 2004-05



Source: Monash Centre of Policy Studies, September 2005

There is a low representation of women in all sectors of the industry. Women represent only 20% of the automotive manufacturing sector, and 26.4% of the RS&R sector. As shown in the following chart both are well below the all industry average of 42.9%.

Female Proportion of Workforce by Industry, 2004-05



Source: Monash Centre of Policy Studies

Workforce Ageing

The recent NCVF Futures Study includes a pertinent point about workforce ageing:

“A prominent fact about the workforce as we look forward is that, as with the population more generally, it will gradually get older. More than 71% of the projected growth in the workforce between 2004 and 2015 will be in the 45 years and over age group (figure 1). In 2004, 12% of the labour force was aged 55 and over. Yet this age group is anticipated to increase to 17% in 2015, accounting for 48% of all growth in the labour force. The 55 to 59 and 60 to 64 years age groups will grow most rapidly, accounting for 11% of the labour force in 2004, but accounting for more than one-third (35%) of the total growth in the labour force from 2004 to 2015.”²¹

*“The change in the age structure of the population and of the workforce will have complex consequences for the demand for skills and for training. One avenue of impact is the change it will bring in the patterns of consumption. A second, direct impact on the demand for training will be through the acceleration in the rate of retirement. This will increase the need for training to **replace** the existing workers, even if there is no net growth in employment in a particular skill/occupation.”²²*

²¹ NCVF Futures Report, op. cit. p. 10

²² Ibid. p. 11

The probable increase in the retirement rate of skilled people in the industry is a further cause for concern when projected from a base of existing skills shortages.

IMPLICATIONS FOR THE SKILLS BASE

There is a strong link between demographic changes and employee attraction and retention issues. The challenge for the automotive industry is to replace those who are exiting the industry either through retirement, or, more commonly, departing early due to dissatisfaction with the industry. The industry growth estimates detailed in Part 3 (Employment Trends) of this report reveal that there is real potential for this problem to be exacerbated.

Similarly, gender imbalance presents a great challenge to the industry. Addressing this issue can provide an opportunity to alleviate the attraction and retention problems.

Some major training issues arise from these demographic profiles. One reason that is frequently presented to explain premature departures from the industry is the difficulty employees have in maintaining skills currency due to the rapid technological development in the industry's products and methods. The industry presents a poor image to women. This could be partly overcome by innovative training methods that are attractive to young women.

ATA RESPONSES

While increased recruitment efforts aimed at both young men and women is a part solution to the demographic issues faced by the industry, the problems are far more complex and require an integrated set of solutions that also address attraction and retention issues. As with responses associated with employee attraction and retention, direct training responses only play a small part in rectifying issues associated with demographic changes in the industry. Some of the measures that may be considered include:

- Providing continuing re-skilling and up-skilling opportunities for the industry's existing employees to maintain pace with rapid technological improvements – appropriate training responses need to be developed and implemented. This requires a detailed examination of a number of issues including:
 - how and when the training is to be provided; and,
 - the availability of funding to cover existing employees within the TAFE system.
- Replacing lost capacity by having recruitment strategies that encourage young people to enter the industry.
- Attracting more females into the industry by targeting marketing and recruitment campaigns at females in secondary schools, providing for networking opportunities among females in the industry and presenting case studies of females who have achieved success in the industry.

CONSUMER AND CUSTOMER SERVICE DEMANDS

After homes, motor vehicles are the next most expensive purchase by consumers. Motor vehicles are also complex, sophisticated products requiring ongoing maintenance. The industry is also extremely competitive. The combination of these factors make consumer and customer service demands a significant major driver for skills needs across the industry.

The critical position of customer focus applies throughout the product lifecycle. Unlike most other consumer products, motor vehicles do require regular maintenance and possibly repair throughout this lifecycle. They operate in a variety of environments including severe conditions. Customers expect that their new vehicle will be:

- well designed and engineered;
- of high quality when manufactured;
- delivered to a high standard from their chosen retail outlet;
- free from breakdowns during normal operations;
- serviced to a high standard with any necessary rectifications being fixed on the first occasion, and;
- if damaged through accident, repaired to a standard comparable with its original condition.

The fact that these very high levels of customer expectations apply right through the product lifecycle means that they also have implications on skill needs throughout the industry.

In both the manufacturing and RS&R sectors, this factor is also closely related to another major driver of industry skills needs, that is, technological advancement. Similarly, in the manufacturing sector, we must link two other major drivers: competitiveness and productivity demands, together with globalisation. All these drivers are closely linked, and have clear implications for training developments in the industry.

The VACC report, Horizon 2015 concludes that:

*“By 2015, the automotive market will have shifted from a product-centric focus to a more consumer/customer segment focus. This shift is expected to drive a continued proliferation of product and service offerings in the marketplace with a focus on the overall consumer and customer lifestyle experience – from the initial vehicle purchase through to the next repurchase.....
Increasing demands and service expectations will be supported by availability of information through growth of the internet, and more “technologically-savvy” consumers. Also, with rising prices, the general perception among consumers that service providers should be delivering greater value, often in the form of better quality service, will increase. As a result motor vehicle manufacturers and RS&R players will adopt new approaches to consumers and take initiatives to improve service delivery and convenience.”²³*

EXTENT OF THE IMPLICATIONS FOR THE SKILLS BASE

It is clear from the preceding outline that consumer and customer service demands have implications for all classifications and skill levels in the industry. Quality is a critical success factor in the manufacture of vehicles, and it clearly involves all employees in the design, manufacture and delivery process. The automotive industry has been recognised for a considerable period as a leader in building quality into its processes, and training workforces in line with these quality ethics and processes. Similarly, customer focus has steadily become a significant factor throughout the RS&R sector. Employees throughout this sector of the industry must recognise customer expectations and aim to exceed these expectations.

ATA RESPONSES

A “Futures Report” commissioned by ATA in 2003 in conjunction with a review of the RS&R training package²⁴ identified customer focus as one of four major constructs that will be critical drivers affecting this major industry sector. The four constructs were:

- customer service and focus;
- technology;
- work practices, and:
- the impact of environmental considerations .

These constructs provided the key parameters for the RS&R training package review.

As noted earlier, customer service and focus has been a continuing driver of training within the manufacturing sector.

²³ Horizon 2015, VACC, 2006. p. 86

²⁴ Causeway Consulting, February 2003

MARKET EXPANSION

The Australian vehicle market has grown substantially in recent years. This trend is projected to continue. Similarly, exports of Australian made vehicles and components continue to grow. Employee shortages in some industry sectors lead to difficulties in meeting this demand.

The Australian vehicle market achieved its fourth consecutive sales record in 2005, with total sales of 988,269 units. Over the previous four years, sales increased by nearly 24 percent from their 2001 total of 772,681 vehicles. Sales were down slightly in 2006, but were still the second best result on record, despite the effect of rising fuel prices.

The following tables detail market sales by segment between 1996 and 2006:

Vehicle Sales by Market Segment 1995 to 1999				
Year	Passenger	Light Commercial	Heavy Commercial	Total Sales
1995	488372	136449	17736	642557
1996	492058	142830	15161	650049
1997	540367	165711	16577	722655
1998	584360	203941	19368	807669
1999	547572	218944	20277	786793

Note: Light commercial includes "sport utility vehicles" i.e. four wheel drives and people movers, etc., together with utilities and similar vehicles.

Source: VFACTS

From 2000 onwards, the former light commercial segment is divided into Sports Utility Vehicles (recreational all wheel drive wagons, etc.) and light trucks (utilities, pick-ups, etc.).

Vehicle Sales by Market Segment 2000 to 2006					
Year	Passenger	Sports Utility Vehicles	Light Trucks	Heavy Commercials	Total Sales
2000	553673	105510	108332	19585	787100
2001	529452	116236	108324	18669	772681
2002	540240	138064	124873	21132	924309
2003	588511	150578	146589	24133	909811
2004	589985	173087	163676	28481	955229
2005	608804	180292	167878	31295	988269
2006	598394	170847	161791	31634	962666
2007 6 mths.	321178	96956	89692	16550	524376

Source: VFACTS

Sales figures for the first six months of 2007 are running at record levels, suggesting that annual sales could exceed 1 million for the first time and be well in excess of the market forecast set out in the following table.

The following table sets out market forecasts for the next five years that have been developed by the Australian Automotive Intelligence Report. The report concludes that “continuing moderate economic growth will help maintain a high level of sales, but temporarily weaker growth in 2009 will dampen sales a little.”²⁵

Market Forecasts 2007 to 2011					
Year	Passenger	Sports Utility Vehicles	Light Trucks	Heavy Commercial	Total Sales
2007	627000	178000	161000	29000	995000
2008	626000	184000	145000	26000	981000
2009	614250	175000	135000	24000	948250
2010	600000	174000	142000	25000	941000
2011	616000	180000	145000	27000	968000

Source: Australian Automotive Intelligence Report, April 2007 (Australian economy and vehicle market 2007-2011)

The substantial growth in sales over the past decade and particularly in the last five years has been accompanied by employment growth in the retail, service and repair sector, highlighting the skills shortages discussed in other sections of this report. Projected high levels of demand will continue to accentuate this problem.

The industry’s export performance is also very impressive as demonstrated in the following table:

Automotive Export performance					
Year	Vehicle exports Units	Value AUDm	Engines & parts AUDm	Other Components AUDm	TOTAL AUDm
1995	23940	679	512	629	1861
1996	44025	1020	478	730	2264
1997	51757	1269	604	844	2717
1998	58389	1296	437	841	2574
1999	83205	1758	509	985	3252
2000	101018	2425	644	1156	4224
2001	117661	3265	416	1263	4944
2002	112088	3083	339	1409	4831
2003	120178	2977	402	1336	4716
2004	131474	3028	452	1197	4689
2005	142022	3473	584	1129	5187
2006	133000	3064	713	1108	4884

Source: Australian Automotive Intelligence Yearbook, 2007

²⁵ Australian Automotive Intelligence Report, April 2007, p. 29

The outlook is for further growth over the coming 5 years, with a conservative estimate suggesting exports will lift to 162,000 units in 2009.²⁶ The main contributors are strong exports to the Middle East by Toyota and GM Holden. GM Holden also recently announced a new program exporting VE Commodore sedans to the USA, badged as Pontiac G8.

An independent projection of vehicle, engine and component exports points to the value of automotive exports rising from \$4.7 billion in 2004 to \$7.5 billion in 2009.²⁷

SECTORAL IMPACT

The overall impact on the industry sectors is mixed. Employment levels in the vehicle and component manufacturing sectors are declining for a variety of reasons, including a decline in the proportion of locally made vehicles sold in the domestic market, productivity improvements, and the offshore resourcing of a number of components used in these vehicles. The high value of the Australian dollar has had some impact on export sales in the past year. Toyota's announcement on September 30th, 2005 of a substantial expansion of its Victorian manufacturing facilities to accommodate production of an additional 30,000 vehicles per annum will counter some of this decline. Ford recently announced that it will cease manufacturing engines at its Geelong, Victoria plant by 2010. This loss will be partially offset by the local manufacture of the 4 cylinder Focus model at Broadmeadows, Victoria, commencing in 2012.

By contrast, the overall domestic market expansion is exacerbating the problem of the shortages of skilled people in the RS&R sector.

IMPLICATIONS FOR THE SKILLS BASE

Market expansion is a key driver of skills needs in the RS&R sector of the industry. It impacts on the retail side of the industry, particularly salespeople. It has a significant impact in the service and repair sector of the industry as a result of the greater volume of vehicles requiring service and repair. The availability of suitably skilled employees is a major concern for the industry. Consequences include high employee turnover and poaching of people within the industry.

²⁶ *Australian Automotive Intelligence Report, August 2005 p. 71*

²⁷ *Ibid.* p. 71

ATA RESPONSES

Response to this issue is essentially the same as the response to the earlier section dealing with employee attraction and retention. Some other aspects which warrant attention include:

- continued implementation of flexible delivery modes;
- continued development of partnerships with providers to ensure that industry training needs are better met; and,
- addressing the issue of skills currency, particularly in the face of rapid technological change in motor vehicles.

COMPETITIVENESS AND PRODUCTIVITY CHANGE

Motor vehicle manufacturing is the world's leading edge industry for productivity improvement. It is also extremely competitive. Australian manufacturers compete successfully in export markets and maintain world best practice standards in these areas.

The Productivity Commission conducted a review of the industry in 2002.²⁸ The following extract is pertinent:

“Vehicle production is the largest manufacturing sector in the world – a key activity in leading industrial nations and of increasing significance elsewhere. It draws on a range of supplier industries, from raw materials (such as steel, aluminium, plastics and chemicals) through to sophisticated component assemblies, design, tooling and engineering services. Moreover, as an intensive developer and user of advanced technologies, the automotive industry is typically viewed as generating significant ‘spillover’ benefits for other activities. As well as undertaking product and process development relevant to other manufacturing activities, the industry is seen as contributing to skill development in areas such as production, design, engineering, computer programming, software development and management systems.”²⁹

The Productivity Commission reference illustrates the leading edge position that vehicle manufacturing occupies in comparison with other manufacturing activities. It also illustrates the extremely strong linkage between vehicle manufacturing and component manufacturing. Put simply, automotive manufacturing is the world leader in competitiveness and productivity change.

²⁸ Productivity Commission 2002, *Review of Automotive Assistance*, Report No. 25, Canberra

²⁹ *Productivity Commission Op. Cit.* page 9

Manufacturing and Component Manufacturing

The four domestic vehicle producers are all subsidiaries of substantial global companies. All have ready access to leading edge continuous improvement processes and are able to benchmark on a world-wide basis. Workforce training has continually emphasised this continuous improvement process. The steady growth in exports of Australian made vehicles and components detailed in the preceding section dealing with market expansion confirms the competitive position of these Australian products.

Similar conclusions may be drawn in respect to the vehicle component manufacturers. Again, many of these are subsidiaries of global corporations. In other instances, Australian companies such as Pacifica have substantial export contracts, or, in some instances, carry out some manufacturing offshore.

In the earlier section dealing with consumer and customer service demands, it was emphasised that there is a very strong linkage between production quality and two other major drivers of skills needs:

- competitiveness and productivity change, and;
- technological change.

These linkages need to be constantly borne in mind in any discussion of these drivers of skills needs.

Retail, Service & Repair

This industry sector is a service industry, and is governed by an overall requirement to satisfy individual customer requirements. Productivity improvements can be achieved in areas where mass processing may be achieved. For example, a salesperson provides individual attention to a customer who wishes to purchase a new vehicle, but will be able to rely on automated administrative support to process the order, and accompanying documentation. Similarly, a considerable amount of vehicle servicing follows routine processes that have been refined and improved, however, rectification of any technical problems will generally require specialised individual diagnosis and repair.

The RS&R sector is, of course, extremely competitive. Competitiveness is driven by customers who shop around for the best deal on everything from a new car through to the cheapest price on even a low cost replacement part. Customers seeking quotes for a crash repair are typically driven by “the best of three quotes” approach. As a result, there is a real incentive for individual businesses to find productivity improvements wherever possible, but this is generally restrained by the overall need for individual attention to what may often be unique needs or problems.

IMPLICATIONS FOR THE SKILLS BASE

Manufacturing

As noted above, the continuous improvement process has been built into training of employees within the manufacturing sector, for a considerable period of time. This extends from operators on assembly lines to tradespeople in routine and preventative maintenance programs.

Retail, Service and Repair

The main issue is to be able to train people to recognise that productivity improvements may be possible while still meeting the overall requirement to satisfy individual customer needs. There is also growing evidence that the “lean” approach to productivity and quality improvement evident in the manufacturing sector is gradually being extended into the RS&R sector.

HEALTH AND SAFETY ISSUES

Occupational Health and Safety has been and remains a key priority for all sectors in the automotive industry. The emphasis is on a pro-active approach to OH&S, which builds on regular, reinforced training.

Effectively managing occupational health and safety (OH&S) risks is a cornerstone requirement for all organisations. The expectations of the workforce, the community and government continue to grow, demanding higher levels of performance in maintaining a safe and injury-free workplace. In recognition of this, the industry has continued to implement OH&S content within each of the competencies.

A Note on Data Availability

An informed discussion of this important subject on an industry wide or industry sector basis is difficult due to the lack of industry specific aggregated data. For example, national figures on industrial accidents by industry are based on ABS data, so the automotive manufacturing sector would be contained within manufacturing as a whole, and the retail, service and repair sector largely appears within “retail trade”. Using this data presents meaningless information for the automotive industry.

Similar conclusions apply to other national data such as the incidence rate of new cases by industry, the frequency rate of new cases by industry, and the incidence and frequency rates of compensated injuries. All these statistics are included in the National Occupational Health and Safety Commission, Compendium of Workers’ Compensation Statistics.

As a result, material in this section relies on anecdotal information. It needs to be re-emphasised, however, that the industry as a whole places OH&S as a key priority.

The industry has raised this issue with appropriate bodies in the past. With a total workforce of over 400,000 people, there is a strong case for specific industry data to be collated.

Manufacturing and Component Manufacturing

The manufacturing sector has placed considerable emphasis on OH&S for long periods of time, with increasingly sophisticated approaches being undertaken in more recent times. Safety performance is a key performance indicator throughout the organisations, and is closely monitored on a regular basis at senior levels in the companies. Workforce training in OH&S is intensive, and is reinforced by regular follow-up processes, often on a daily basis.

Retail, Service & Repair

This sector of the industry is diverse, however, the emphasis on OH&S is common, and is a recognised part of all the industry's competencies. A further reinforcement is provided by the fact that the output of many employees' work has a real impact on community health and safety. Proper servicing and repair of motor vehicles is an obvious contributor to their ongoing safe performance on the road.

The Motor Trades Association of Australia has specifically pointed to the importance of OH&S in the agricultural sector and the implications of this for farm machinery dealers. MTAA policy states that:

"Farm machinery dealers acknowledge that they have certain responsibilities and obligations in relation to occupational health and safety and as such, MTAA supports measures that will assist farm machinery dealers to meet those obligations. However, MTAA believes that the obligations placed on farm machinery dealers should not be unreasonable or overly burdensome.

One of MTAA's member bodies, VACC, has developed the HazCheck system to address this void in the risk management and hazard identification process associated with the trade-in and resale of used farm machinery. HazCheck is a voluntary code of practice which provides dealers with a complete management system. This system is supported by practical "hands-on" training and also the Farm Machinery Safety Training Guide Workbook.

MTAA is committed to helping dealers to understand their duty-of-care obligations towards operators of their machinery and therefore supports any further additions to these successful initiatives and the national rollout of the HazCheck system."³⁰

³⁰ MTAA Public Policies 2006.

IMPLICATIONS FOR THE SKILLS BASE

The industry has reinforced OH&S training requirements as a cornerstone requirement. The emphasis now is towards a pro-active approach to OH&S. In other words, what can the workforce as a whole contribute to anticipating and preventing OH&S problems?

TECHNOLOGICAL ADVANCEMENT

The rate of technological advancement is exponential throughout the automotive industry. It is clearly evident in both engineering and manufacturing developments. The rate of technological advancement in the industry's products also has profound implications for the retail, service and repair sector.

The following extract from Horizon 2015 is particularly relevant to this topic:

"The automotive market is on the cusp of a seismic shift in vehicle technology. The typical vehicle today is an extremely inefficient unit. Up to 80 percent of the energy (i.e. fuel) consumed is lost in heat, while another 19 percent is used in moving the vehicle. With only one percent of the energy consumed actually moving the weight of the occupants, there is vast room for improvement.

As the global car park doubles to one billion over the next 15 years, market forces and consumer preferences will drive vehicle innovation that will dwarf the changes over the previous three decades.

These changes are occurring across all areas of the vehicle, from powertrain through to electronics and driver-assist systems. While manufacturers and suppliers continue to push new technologies to gain a competitive advantage in the marketplace, consumers are increasingly looking for refinement of the driving experience. There is a fine line between push by manufacturers and pull by consumers, both of which are co-dependant. Additionally, the consumer expectation is that the advanced features integrated into today's vehicles be designed and produced at minimal extra cost. Competitive pressures and improved manufacturing methods have so far achieved just that. For example, the real cost of purchasing a Holden Commodore has seen minimal growth from 1999 to 2004, while the number of features continued to increase."³¹

Rapid technological change is evident in two forms:

- Product design and engineering
- Methods of product manufacturing

³¹ Horizon 2015, VACC, 2006, p.88

Technological Advancements in Products

Product design and engineering developments occur constantly. They include evolutionary changes in:

- Body structures incorporating lighter weight designs , while simultaneously improving passive safety of the vehicle.
- Powertrain technology providing both improved performance and reductions in fuel consumption and emissions. Developments in this area will be significant in response to the realities of climate change and steady increases in the real cost of fuel.
- Features incorporated into the vehicle such as active safety systems, and sophisticated security and entertainment systems.

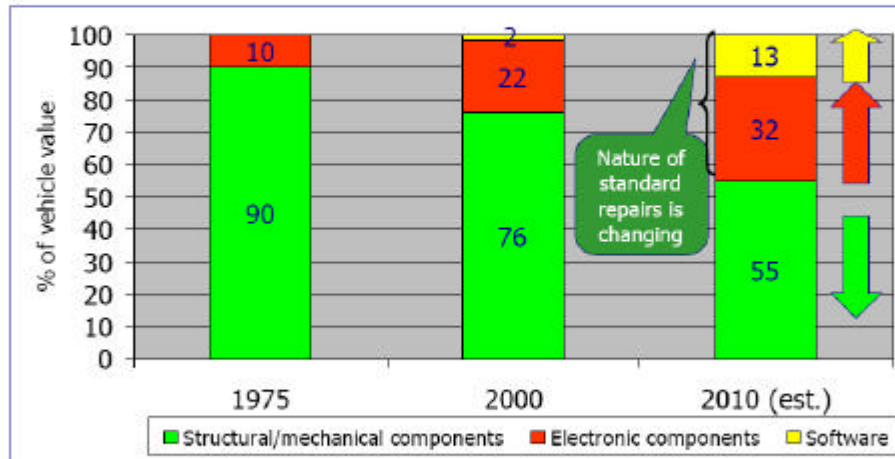
Horizon 2015 forecasts the following advances in vehicle technologies over the next 10 years³²:

- Retention of the internal combustion engine as the main power source, however substantial advances will be made to engine efficiency delivering better fuel efficiency and performance. Diesel vehicles which now account for 50 percent of European passenger car sales will increase, as will the number of hybrid vehicles. Fuel cell vehicles are unlikely to achieve many sales in this time-frame.
- Increased use of lighter advanced materials in redesigned vehicles. Increased use of lighter materials and advanced body structures will allow greater flexibility in body styling.
- Mechanical-hydraulic systems will continue as the industry standard; however this will be accompanied by an increasing prevalence of electro-mechanical systems. "...consumer demand for enhanced safety and manufacturers need for market differentiation will drive the introduction of advanced safety systems such as electronic stability control as standard over the next 10 years."³³ The development of electro-mechanical systems is well illustrated in the following chart from ICDPA:

³² *Ibid.*: section 5.10, pp. 139 to 141

³³ *Ibid.*: p.140

Mechanical components declining as a proportion of vehicle value



Source: Aachen University

© ICDPA, 2007

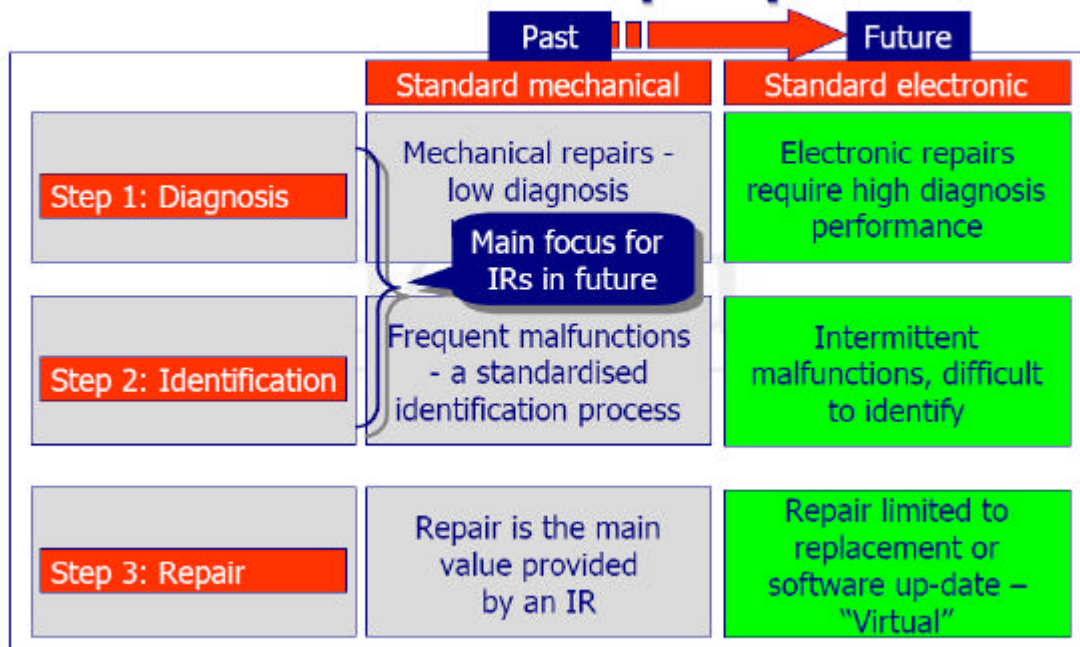
It is pertinent to note that a current Federal Government safety campaign urges consumers to purchase new vehicles fitted with electronic stability control and curtain airbags.

- New interior technologies and telematics are being incorporated into base designs.
- Other safety advances will be significant, and will include features such as:
 - Adaptive cruise control
 - Fatigue warning systems
 - Smart airbag inflation and other damage mitigate on systems
 - While innovation in vehicle systems may add to the overall complexity of the average vehicle, a compensating factor will be increased simplicity through the use of modular systems.

“Businesses in the RS&R sector face the challenge of maintaining the requisite level of skills and equipment to manage these changes. Though servicing and repairs may become more costly for the consumer, improvements to vehicle durability and longevity will mean better value for money spent.”³⁴
- The following chart from ICDPA illustrates the evolution of the vehicle repair process:

³⁴ Horizon 2015, p.141.

Evolution of the repair process



© ICOPA, 2007

It must be emphasised that this is an evolutionary process over a broad continuum. Vehicles have a long life cycle, and older technologies need to be maintained in parallel with the newer developments.

- Body repairs will tend towards 'remove and replace' as a result of the increasing durability and complexity of body parts. *"Usage of increasingly complex alloys, composites and designs will mean that body repairers will need to invest in specialised equipment, training and certification to accommodate work on these advanced materials. This is especially so with the use of metallic alloys and plastics, since they are not designed for rework. In addition some of these costs will need to be passed onto the customers, and repairers will need to adopt a process to inform customers of the changing cost of repairs."*³⁵
- Chassis technology will have a clear shift towards electrical systems. There is a strong possibility of a transition to 42 volt electrical system and "drive by wire" is likely to reduce traditional work associated with servicing hydraulic and mechanical systems, which will be replaced by maintenance and calibration of the electronic control systems and their mechanical counterparts.

³⁵ *Ibid.*: p.141

- “Improvements in safety, through remote diagnostics and driver-assist systems, are also expected to result in less need for repair work. Due to their potential to reduce the likelihood of collisions, these technologies are perhaps the most significant for the smash repair industry.³⁶
- A further trend projected by the Centre for Automotive Research in Michigan, USA highlights the connected vehicle which will be able to interact with the infrastructure. Essentially wireless communication and computer networking will enable :
 - Vehicle to infrastructure communication which will eventually lead to nationwide deployment of an integrated communications infrastructure on roads and in all production vehicles to enable a broad range of safety and mobility services that today are unattainable.
 - Vehicle to vehicle communication to enable safety systems such as crash detection and avoidance.
 - The ultimate goal of the “Silicon Roadway” which will include features such as driverless vehicles.

While the above outlines technologies that will be incorporated into passenger motor vehicles, a similar rate of change is evident in other industry products, including trucks, earth-moving equipment and farm machinery.

Technological Advancements in Manufacturing and Component Manufacturing

Advances in product design have been accompanied by similar rapid improvements in vehicle manufacturing. The industry has always been the pacesetter in “lean manufacturing”³⁷ Essentially, lean manufacturing is an integrated method of organising and managing customer relations, the supply chain, product development, and production operations. In conjunction with this “lean” approach, constant improvements are evident in manufacturing engineering. Examples include integrated metal stamping lines, robotisation of body welding processes, highly sophisticated water based painting processes and modular assembly processes.

³⁶ *Ibid.*: p. 141

³⁷ This was discussed extensively in the groundbreaking research conducted by the Massachusetts Institute of Technology through their International Motor Vehicle Program, published in the best-selling books “The Machine that changed the World – the story of lean production” (James P. Womack, Daniel T. Jones and Daniel Roos, Rawson Associates, USA, 1990), and “Lean Thinking” (James P. Womack and Daniel T. Jones, Simon & Schuster, New York, USA, 1996)

Retail, Service & Repair

The rapid advances in product technology have a natural flow-on effect to all parts of the retail, service and repair sector. The impact is complex due to a unique factor of the automotive industry, that is, the lifespan of the products and the requirement to maintain these products throughout the lifespan. The average age of vehicles on Australian roads is over ten years, with approximately 4 million vehicles in the car parc that are 13 to 20 years old. A 25 year old vehicle with a carburettor fuel system has vastly different servicing requirements to a modern vehicle with a fuel injected engine governed by computer controlled engine management. Some new vehicles have composite bodies requiring highly specialised approaches to crash repair. Specialised painting processes are also required for many new vehicles.

IMPLICATIONS FOR THE SKILLS BASE

Manufacturing

The sections dealing with consumer and customer service demands, together with the section on competitiveness and productivity demands referred to the long history of training that applies in the manufacturing sector to these skill drivers. A similar position applies to technological advancement. Reskilling of the workforce is ongoing in line with technological change.

Retail, Service and Repair

The position is different in the RS&R sector. The final National Industry Skills Initiative Report contains the following conclusions:³⁸

“In many ways the industry is in a state of metamorphosis. The mechanic and the body technician of the future will be typified by an IT diagnostic skill set with highly developed communication, team work and team building skills.

Automotive based services to the community, in the future, will be based on large but segmented organisations, dealerships, front end specialists, brake specialists, and niche organisations. It is quite probable that the generalist mechanic found today will be marginalised by more economic parts change-over operations in the future. That is, it is likely to be cheaper to replace the part than to repair it. A broad based mechanic with a deep skill set and knowledge set will in many ways become a specialist; our generalist mechanic of today will become a specialist of tomorrow residing in a segmented area of the industry.

In this segmented industry environment, dominated by narrow but deep occupations in specialised areas, broad skill sets will be less common and less sought after by employers.”

³⁸ NISI Report, *op. cit.* pages 6-7

There is increasing evidence of segmentation occurring. Examples include:

- Specialisation in the repair of specific components, such as alternators, air conditioning compressors, transmissions, braking systems and engines. The industry has developed specific qualifications for these skills such as Certificate III in Automotive (Mechanical – Automatic transmission).
- The establishment of specialist body repair and spray painting facilities such as the BMW bodyshop located in Port Melbourne, Victoria.
- A high-technology vehicle such as the Mercedes Benz CLK model. In this case, the integration of a variety of structural materials together with the body construction methodology has led to only one repairer (which is linked to the company) being authorised to carry out body and paint repairs for the whole of Australia. A vehicle damaged in Perth would be taken to the authorised repairer in Sydney for repairs, and the customer would be provided with a temporary replacement vehicle.

SUGGESTED RESPONSES

The main implications are in the retail, service and repair sector.

At entry level, the development of segmentation of the industry and the development of greater specialisation led to the following conclusion in the NISI report:

“In a sense this position contradicts the need to lessen the pressure on youth to stay at school in favour of starting an apprenticeship at an earlier age. It does however have to be viewed on the basis that the future will see significant changes in the types of training required to meet the skill needs in industry.

If four year apprenticeships are an unpopular choice for youth leaving school at 18 years then quicker, more streamlined approaches to skills development and remuneration will need to be developed.

It is possible that given these tensions between school-leaving age and periods of apprenticeship, an intersection may occur on narrower skill base requirements in the industry and shortened training cycles required in some areas of the industry to achieve competency and certification. An example of this situation is where apprentice motor mechanics in dealerships spend up to four years carrying out routine servicing processes due largely to a lack of diagnostic and repair work required in new vehicles. It could be argued that for apprentices in that they are employed in extremely segmented areas of the industry a four year apprenticeship is not required and a different skill mix that provided broader workplace applications could be considered. This new skill mix could include broader, cross-functional activities that would enable the apprentice to be employed in a number of different functions in the dealership.³⁹

³⁹ NISI Report, *op. cit.* pages 6-7

One future scenario that emerges is a reorientation of training in the service sector to recognise the rapid development of segmentation. This would involve the use of traineeships to cover entry level classifications and involve routine and regular service requirements with a separate team of specialised tradespeople whose function is to test and diagnose rather than service and repair.

Maintenance of skills currency of existing employees in the industry is also a major issue. The industry is concerned that:

- Existing employees in the industry, particularly older employees, need effective avenues to maintain the currency of their skills and to improve their skills base in light of rapidly changing technology and related issues.
- Similarly, the education sector needs an effective means of maintaining both the currency of staff skills and the associated infrastructure requirements associated with the new technology.

This latter point is worthy of further examination. It is suggested that it is both extremely difficult and inefficient for the public education system to keep up with technological advances in the absence of widespread and effective industry partnerships. As a simple example, TAFE Colleges simply should not be expected to have on hand examples of all the latest vehicles and the technology incorporated into them. Costs would be both prohibitive and unnecessary. The same position applies to equipment such as body repair and spray painting technologies. A preferable approach is the development of workable industry partnerships where the latest vehicles and equipment are on site through local employer networks. The TAFE system should provide underpinning knowledge with practical applications being developed through industry partnerships.

In view of the critical skills shortages in this industry segment, detailed examination of this issue is required to avoid a further exodus of older employees from the industry, because they are unable to keep up with technological change.

GLOBALISATION

Globalisation is a significant factor in the industry. The manufacturing sector is highly integrated into global enterprises. In turn, the retail, service and repair sector is heavily influenced by global developments.

The sheer size of the global automotive manufacturing industry is illustrated by the following points:

- The industry produces nearly 70 million vehicles per year.
- Around eight million people are employed in vehicle and component production.

- If the industry was grouped as a single entity, its turnover would make it the world's sixth largest economy, larger than Italy, Spain, Canada or India.
- The Australian industry produces less than 0.5% of the annual global vehicle production; however it has developed a specialised niche which supports a strong export performance.

Previous sections of this report have shown the extensive global integration of the manufacturing sector of the industry, including the component manufacturing sub-sector⁴⁰. A supply chain revolution is in progress and with rapidly emerging globalisation of all product sourcing opportunities, the Australian manufacturing and components sectors must not only adapt, but stay ahead of the field. World industry development is shifting high labour, low logistics production to Eastern Europe, China and Japan. Australia is losing components and sub component production to China and Thailand, meaning that there is a limited future for basic components in Australia. Australia's advantages in skills, investment and manufacturing management, together with its technology and development and engineering resources provide the opportunities for the industry to grow in the future. The industry is a significant exporter, and must compete in a highly competitive global market place. This competitive environment reflects heavily in the industry's training practices which are directed at world's best practice.

Globalisation in the vehicle manufacturing and components sector, in turn, heavily influences the RS&R sector. As detailed earlier in this report, the retail sector is heavily integrated with the manufacturers and importer/wholesalers. While the franchised dealer outlets are independent businesses, manufacturers and importer/wholesalers invest heavily in training their franchised dealers to meet uniform standards of customer service. The essence of franchising in the industry is that a customer can expect the same levels of attention and service at any of the retail outlets.

The impact of globalisation is lessened further through the industry's value chain, particularly in the repair and aftermarket areas, and the smaller sub-sectors such as bicycles. Despite this, evidence of global influences is increasing in these areas. One example involves the centralisation of crash repair facilities for particular marques of motor vehicle due to the technology used in their body construction and exterior painting. Recycling is also an area where global practices are steadily being introduced.

⁴⁰ It is pertinent to note the following extract from the General Motors Corporation 2006 Annual report (p. 25) *"Maximising the benefits of running the business globally continues to be crucial to GM's success and is a top priority for 2007. Our drive to become a globally integrated company is one of the most profound changes taking place at GM."*

IMPLICATIONS FOR THE SKILLS BASE

Manufacturing

The theme established in earlier sections repeats itself here. The vehicle manufacturing and components sector must achieve world best practice to remain competitive and viable. As a result, world best training practices have been established and must be maintained.

Retail, Service and Repair

Global best practice extends into the industry's retail and service sectors to meet customer expectations and to match the rapidly advancing technology introduced into the industry's products. As noted above, these practices are steadily moving into the repair and aftermarket sectors of the industry. Training requirements may be summarised into two main areas:

- new entrants must be capable of handling the new technologies of the industry's products, particularly given the convergence of mechanical and electrical systems, and;
- the skills of existing employees need to be constantly maintained and upgraded.

SUGGESTED RESPONSES

The implications of globalisation are fully recognised by the industry. Similarly, the necessary responses have been incorporated into the relevant training packages.

REGULATORY COMPLIANCE

Regulations apply in many forms to different parts of the industry. Compliance is an essential training need.

The automotive industry is subject to a number of legal and regulatory controls, together with some voluntary standards. Many impact directly on the work of employees in the industry. Industry training packages need to continually reflect these controls, and knowledge of current and pending requirements is a critical part of training package development. The principal areas are as follows:

Australian Design Rules

All locally produced and imported motor vehicles are subject to Australian Design Rules (ADRs). These are administered by the Vehicle Safety Standards branch of the Department of Transport and Regional Services. The ADRs set out design standards for vehicle safety and emissions. They are developed through a consultative process involving government, industry, employee and consumer representatives.

The ADRs use United Nations vehicle categories and are harmonised to a considerable extent with international standards.

ADR compliance is, of course, essential in the Manufacturing sector, but they also have considerable affect in the retail, service and repair sector. Motor mechanics, for example, must ensure that vehicles continue to adhere to required standards such as exhaust emissions, seat belt functioning, the aim and operation of lights, and a number of other standards. Body repairers need to ensure compliance during crash repair processes.

Licensing

Uniform licensing standards do not apply in the industry. Motor mechanics are required to be licensed in New South Wales and shortly in Western Australia and the ACT, but not in other jurisdictions. Installing, repairing and servicing of Liquefied Petroleum Gas (LPG) and Natural Gas (NGV) systems is carried out by licensed people in all States and Territories, with the pre-requisite being that a qualified Motor Mechanic (Certificate III) undertakes the work.

New licensing agreements are likely in Victoria, Northern Territory and Western Australia over the next 12 months. Fitting and servicing of vehicle air-conditioning systems are now covered by regulation nationally.

The industry is concerned that developments in this area are piecemeal with insufficient consultation between the States and Territories on a national outcome. It is ironic that vehicles which frequently cross State and Territory borders are subject to different regulations in respect to the people responsible for their maintenance and repair.

A Motor Mechanics Action Group was established as part of the Council of Australian Governments (COAG) Skills Initiative Task Force. The COAG decision to put in place more effective mutual recognition arrangements will cover all registered occupations. The COAG decision has recognised that the significant differences in licensing arrangements between jurisdictions is inhibiting the effectiveness of mutual recognition and restricting occupational mobility across jurisdictions. The role of the Motor Mechanics Action Group was to progress the COAG initiative in relation to Motor Mechanics. As the RS&R

Training Package (AUR05) is relevant to the issue of licensing requirements, ATA was a member of the Action Group.

Environmental Standards

The RS&R *Futures Report*⁴¹ contains a comprehensive discussion on this subject and the widespread implications for the industry. These issues have been taken into account in the review of the RS&R training package.

Occupational Health and Safety (OH&S)

OH&S laws are also a major feature of the industry training packages. Apart from acknowledging the passive requirements of the laws, the industry has taken a number of initiatives in pro-active OH&S. Again, these are incorporated, where appropriate, into training packages.

ISO TS 16949

Component manufacturers are required, as part of global agreements with automotive producers, to achieve and maintain ISO TS 16949 certification.

IMPLICATIONS FOR THE SKILLS BASE

Knowledge of, and compliance with the varied framework of Federal and State/Territory regulations is an essential element of industry training requirements. This is recognised within the industry training packages.

INSURANCE

There are a large number of small to medium sized businesses in the retail, service and repair sector of the automotive industry. These businesses face rising premiums and some difficulties in obtaining insurance cover. This reinforces the need for a continuing strong focus on safety-related skills development.

Businesses are being affected by rising insurance costs. A particular issue in the RS&R sector is the increase in premiums resulting from product liability cover. Vehicles need to be repaired to demanding specifications, and repairers may face liability for any defects. This is one contributing factor to the segmentation of the industry described earlier – specialists are in a better position to repair parts of a vehicle to the required specifications. Often these specifications affect the safety features of a vehicle, or environmental issues such as exhaust emissions.

⁴¹ Causeway Consulting, op. cit. section 8, pages 47 to 57

Similarly, insurance companies are frequently directly involved in repair processes from the authorisation of crash repairs to the final sign off on the repair.

Consequently, the impact of insurance issues is to reinforce the need for employees to have appropriate skills and qualifications to carry out repairs.

The major impact of insurance however is more likely to be related to occupational health and safety issues.

IMPLICATIONS FOR THE SKILLS BASE

Insurance issues are like OH&S. A pro-active approach must reinforce skills training. Apart from OH&S training employees must have the skills and qualifications required to complete jobs to required specifications in a safe fashion.

E-BUSINESS

There is generally little industry concern with the influence of e-business on skills development needs across the industry

E-business has been and will continue to be a way of life for most businesses in the automotive industry. The manufacturing sector was a forerunner in the adoption of information technology. Today, information technology is integrated across the whole business, and, importantly it is closely linked to industry inputs through the supplier sector and outputs through the retail, service and repair sector. Information technology impacts the vast majority of employees in the industry.

One example, involves the just-in-time scheduling processes used throughout the manufacturing industry. Motor vehicles are produced at high volume on common assembly lines; however each vehicle may be different in colour or body style, or may have different specifications in terms of options. This complex production process relies on information technology to communicate with suppliers to facilitate just-in-time deliveries who need to build each vehicle to its ordered specifications, and with logistics providers and the dealer network to ensure end delivery to the customer. Machinery within the factories may be computer controlled or rely on computers for diagnosis and repair processes.

In the retail sector, dealers rely on e-business to order, receive and pay for vehicles, together with invoicing and accounting systems, and electronic interfaces with the manufacturers and importers for information on vehicle diagnosis and servicing. Modern vehicles have e-links where technicians can "plug-in" diagnostic computers to assist them in working through a diagnosis of any problems in a vehicle. In the repair sector, employees use information

technology to assist in repairing vehicles to their proper specification, and to work with organisations such as insurance companies.

A further extension will see the incorporation of smart technologies into vehicles including remote diagnostics, service reminders and vehicle tracking for efficient use.

IMPLICATIONS FOR THE SKILLS BASE

The early adoption of e-business within most businesses within the industry means that there is generally limited concern with the influence of e-business on skills development within the automotive industry. As highlighted in earlier sections, some concerns have been raised in respect to the difficulties that some older employees have in adapting to new technologies.

SUGGESTED RESPONSES

Where necessary, e-business skills have been incorporated into competencies within the training packages.

Software packages tend to be business specific, for example, a manufacturer or importer will utilise proprietary software in an integrated approach with its suppliers and retail outlets. For this reason, training needs to be specifically adapted to the individual packages. Industry wide approaches are therefore tailored to provide employees with generic e-business skills that provide a foundation for the wide variety of hardware and software that is used in the industry.

EMPLOYMENT ARRANGEMENTS

The use of flexible employment arrangements is limited throughout the automotive industry.

In most sectors of the industry, flexible employment arrangements are minimal. Employment tends to be on a full-time basis with casualisation mainly appearing in sub sectors like service stations.

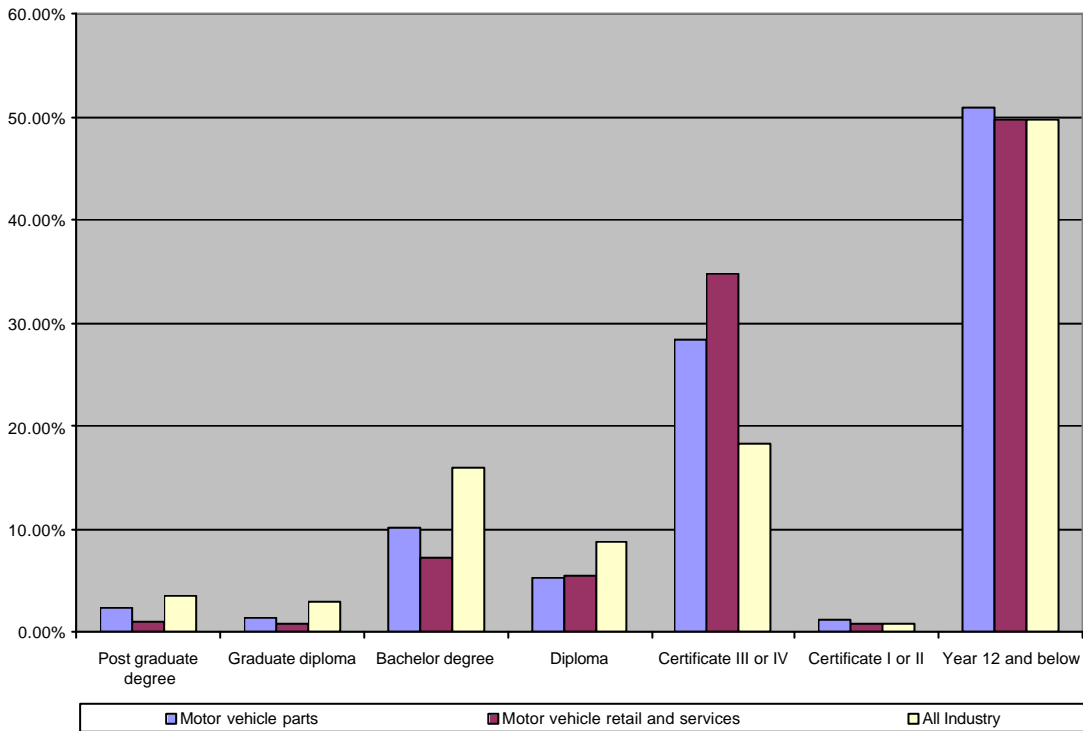
Contracting is used in the manufacturing sector in areas such as design and engineering, and support functions like information technology, catering and security.

5 Vocational Education and Training Trends

Educational Attainment of Employees in the Industry

The automotive industry has a higher proportion of its workforce in possession of post-school qualifications than does industry overall. This applies particularly to vocational education and training qualifications as illustrated in the following chart where both the automotive manufacturing and RS&R sectors have a much greater proportion of employees with AQF III and IV qualifications than industry in general.

EMPLOYMENT BY QUALIFICATION LEVEL, AUTOMOTIVE INDUSTRY, 2004-05



Source: Monash Centre of Policy Studies, September, 2005

Participation in Training

The following table shows that there has been very impressive growth in the number of Australian Apprenticeship commencements under the industry's two major training packages (Automotive Industry Manufacturing and Automotive Industry Retail, Service and Repair). Between 2000 and 2006, the total number of commencements increased by over 200% across Australia. The pattern of growth is reflected in all States and Territories. These figures represent data on publicly funded training activity only, which includes training under Training Packages and other registered courses. The growth rates support the view that the industry recognises the important role that VET programs occupy in addressing the industry's employee attraction and retention issues.

New Apprenticeship Commencements – Automotive Industry – 2000–2006 (12 months to December 31) – All Automotive Qualifications

	NSW	VIC	QLD	WA	SA	TAS	ACT	NT	*AUST
2000	1890	700	830	30	750	210	180	150	4650
2001	3230	2840	2010	270	1050	260	190	200	9940
2002	3600	3490	3040	980	1390	330	170	200	13200
2003	3420	3910	2970	1110	2670	320	470	210	15080
2004	4024	4850	2879	1119	2256	402	527	213	16270
2005	3860	3580	3090	1520	1300	330	230	250	14160
2006	4302	3659	2949	1651	970	288	234	241	14293
Change 2000-6	128% incr.	423% incr.	255% incr.	5400 incr.	29% incr.	37% incr.	30% incr.	60% incr.	207% incr.

Source: NCVET

The breadth of the industry's qualifications is shown in the following table detailing the number of people in-training as at 31st March, 2007. Qualifications range from the traditional trade qualifications of Motor Mechanics, Panel Beaters and Spray Painters to newly developed qualifications in areas like automotive aftermarket retail operations and bicycle servicing.

**Enrolments in main qualifications under Training Packages
Automotive Industry, March 2007**

AUM20100 – Certificate II in Automotive Manufacturing	1670
Total enrolments in AUM – Automotive Industry Manufacturing	1980
AUR21799 – Certificate II in Automotive (Mechanical – Vehicle Servicing)	180
AUR22199 - Certificate II in Automotive (Sales – Service Station Operations)	80
AUR30199 – Certificate III in Automotive (Electrical)	730
AUR30805 – Certificate III in Automotive Vehicle Body	2160
AUR30405 – Certificate III in Automotive Mechanical Technology	9330
AUR30899 – Certificate III in Automotive (Mechanical – Heavy Vehicle Road Transport)	1960
AUR30999 – Certificate III in Automotive (Mechanical – Heavy Vehicle Mobile Equipment, Plant, Earth-moving, Agricultural)	1440
AUR31099 – Certificate III in Automotive (Mechanical – Light Vehicle)	6640
AUR31199 – Certificate III in Automotive (Mechanical – Motor Cycle)	
AUR31399 – Certificate III in Automotive (Sales– Parts Interpreting)	350
AUR31499 – Certificate III in Automotive (Sales– Vehicle)	420
AUR31699 – Certificate III in Automotive (Vehicle Body – Panel Beating)	1190
AUR31899 – Certificate III in Automotive (Vehicle Body – Vehicle Painting)	1220
AUR31999 – Certificate III in Bicycles (Mechanics)	40
AUR32299 – Certificate III in Marine (Mechanics)	220
AUR32499 – Certificate III in Outdoor Power Equipment (Mechanics)	140
AUR35101 – Certificate III in Automotive Aftermarket Retail Operations	400
Total enrolments in Automotive Repair, Service and Retail	31130
Total enrolments – All Automotive Qualifications	33110

Source: NCV ER

The Retail, Service and Repair (AUR) Training Package was ranked number five out of the top 20 most used training packages in relation to commencements and number four in relation to numbers in-training as at 31st March, 2007.

Ranking marginally behind the Business Services, Retail and General Construction Training Packages, the AUR package is used by 7.8% of all apprentices and trainees nationally (as at 31st March, 2007) and accounted for 6.8% of all new starts in the March 2007 quarter. This means that 31,130 of the 400,200 apprentices and trainees using a nationally accredited training package were being trained under the Automotive RS&R Training Package.