

# **MANUFACTURING SKILLS AUSTRALIA**

## **ENVIRONMENTAL SCAN 2010**



## ***MSA Environmental Scan 2010 DRAFT 15th Feb 2010***

### **Inside Cover:**

MSA would like to acknowledge the many valuable contributions that informed this report. This Environmental Scan has been produced with the assistance of funding provided by the Australian Government through the Commonwealth Department of Education, Employment and Workplace Relations.

We extend an open invitation for all of our stakeholders to continue to work with us in developing and improving workforce development for manufacturing and automotive industries.

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# **MSA Environmental Scan 2010 DRAFT 15th Feb 2010**

## **CONTENTS:**

EXECUTIVE SUMMARY .....	5
Document objectives.....	5
Key messages.....	6
LATEST INTELLIGENCE.....	7
The journey of 2009.....	7
Continuing issues.....	8
Make or break management skills .....	9
Strategies to keeping skills.....	11
Skill shortages still a key concern for industry .....	12
Sure change on climate change.....	12
Business prospects for manufacturing and automotive industries 2010.....	13
The VET Environment.....	14
A bigger vision for skills.....	14
Participation in VET .....	14
Achieving standards of delivery .....	15
Shortages still on the table .....	16
Apprentices – skills for the future.....	16
IDENTIFIED WORKFORCE DEVELOPMENT NEEDS.....	18
Aerospace.....	18
Automotive .....	20
Furnishing .....	24
Laboratory Operations .....	27
Metal, engineering and boating.....	28
Process manufacturing.....	32
Textiles, Clothing and Footwear (TCF).....	36
CURRENT IMPACT OF TRAINING PACKAGES .....	40
MSA07 Training Package.....	40
Competitive manufacturing .....	40
Aeroskills .....	41
Automotive .....	42
Furnishing .....	43
Laboratory Operations .....	44
Metal, engineering and boating.....	44
Process manufacturing.....	45
Chemical, hydrocarbons and refining.....	45
Plastics, rubber and cabling.....	46
Manufactured mineral products .....	46
Recreational Vehicles .....	46
Textiles, Clothing and Footwear.....	47
Learner profile .....	47
ENROLMENT SUMMARY DATA .....	49
FUTURE DIRECTIONS FOR ENDORSED COMPONENTS OF TRAINING PACKAGES .....	51

**MSA Environmental Scan 2010 DRAFT 15th Feb 2010**

Demand driven..... 51  
Holistic approach to workforce development..... 52  
Sustainability..... 53  
Skills for the future ..... 54  
Final words..... 55

Appendices

- A) Training Package Continuous Improvement Report
- B) Methodology and Bibliography
- C) Consolidated list of Occupations in Demand

## **EXECUTIVE SUMMARY**

Twelve months ago, manufacturers and retailers were tightening belts and bracing for the inevitable impact of the global financial crisis, yet another serious challenge for an already embattled industry. Job losses and plant closures were beginning to hit the headlines and enterprises were looking to multiple strategies to help navigate the storm. Survival was the key focus – not just for individual enterprises, but for industry in Australia, as a whole. Turning into 2010, the business climate is beginning to gain some optimism, and there are clear signs that some of those strategies have been working. But the manufacturing and automotive industries are still walking a tight rope to solid ground and most believe we are still at a critical stage in ensuring that Australia remains *'a country which makes things'*.

### **Document objectives**

Manufacturing Skills Australia's (MSA's) Environmental Scan 2010 aims to capture the stories and experiences of manufacturing and automotive enterprises over 2009 and give insights into the industry's priorities for 2010. It is designed to provide anecdotal, qualitative information to inform industry and government workforce development policies and initiatives. While it considers research findings of some of industry's key stakeholders, it is not intended to replicate statistical research. Rather, MSA's Environmental Scan should be received as an ongoing story, building upon and updating previous Environmental Scan documents and bringing together information gathered during 2009 from a variety of sources including surveys, interviews, site visits, feedback and the continual conversations with those working within manufacturing and automotive industries.

The Environmental Scan comprises four main sections.

**Section 1 - The Latest Industry Intelligence** examines key issues impacting on manufacturing and automotive industries in 2010 and identifies evolving trends and conditions.

**Section 2 - Identified Workforce Development Needs** examines the workforce development issues for each of the MSA sectors.

**Section 3 - Current Impact of Training Packages** highlights how the MSA Training Packages are currently working in industry.

**Section 4 - Future Directions for Endorsed Components of Training Packages** suggests how Training Packages and the Vocational Education Training system can better meet the needs of industry.

In addition, further information is provided in the Appendices on MSA's program of continuous improvement, Environmental Scan methodology and occupations and qualifications in demand.

### **Key messages**

The overwhelming message from industry at this time is that there are still many challenges ahead and the road may well be a long one. There is a sobriety and seriousness about the work to be done to rebuild and re-grow industry capacity and confidence and repair vital links in supply chains. A range of supports will be vital over 2010 to achieve this and also to capture and secure the many opportunities arising from new technologies, new markets and environmental sustainability drivers.

The following points summarise the key messages raised in the research for this Environmental Scan.

- The impacts of the Global Financial Crisis (GFC) are variable across MSA's sectors and progress out of the downturn will differ from sector to sector and within sectors. A variety of supports and strategies will need to be applied accordingly.
- Reduced orders, reduced profit and reduced access to credit are key challenges to enterprise viability.
- The anticipated impacts of a Carbon Pollution Reduction Scheme (CPRS) are still a major concern for industry and most are still waiting on details before engaging strategic responses.
- The need for sustainability appears to be much more widely accepted across industry.
- The GFC has reduced the urgency of skill shortages but not the concern, industry expects skill shortages to be a key limitation to growth again in the near future.
- Australian manufacturing relies on its skill in design, product development, specialist expertise, technology, supply chain management and lean processes, in order to compete internationally.
- Management skills have emerged as a critical component to enterprise success and Australian enterprises do not rate well against international benchmarks.
- Government stimulus initiatives and funding were instrumental and effective in supporting enterprises through the GFC.
- Enterprises, industry and Vocational Education and Training (VET) must embrace a holistic, workforce development model to address broad skilling and employment challenges.
- VET programs and funding mechanisms must be flexible enough to respond to a variety of industry workforce development needs.
- Workforce development initiatives must be demand driven and be directed by skills analysis activity.
- Implementation needs more focus, and trainers need professional development support to ensure the VET system achieves to the standards expected and required.

## **MSA Environmental Scan 2010 DRAFT 15th Feb 2010**

- Apprenticeships have suffered over 2009 and need to be reinvigorated to avoid long term skill shortages.

## **LATEST INTELLIGENCE**

***“Manufacturing is critical to Australia. It accounts for 9% of all jobs, 11% of full-time jobs, 13% of private sector jobs and 20% of jobs held by blue collar workers. It generates two-fifths of our exports and performs a 1/3 of our business R&D”.<sup>1</sup>***

***The automotive industry provides 329,000 jobs in approximately 62,000 businesses across a comprehensive supply chain that spans manufacturing, retail sales, repair and servicing.***

The health of these industries is paramount to Australia’s economic stability and its future capacity.

### **The journey of 2009**

And what a year it was! From plummeting financial graphs, business closures and displaced workers to tales of personal challenge and environmental crisis, 2009 certainly took the notion of ‘life is change’ to a whole new level. But they say that when the chips are down, you get to see one’s true colours, and if that is the case, manufacturing and automotive industries proved to be resilient, adaptable and committed to a long term vision.

January 2009 had manufacturers and retailers under stress after years of having capacity limited by skill shortages, global market forces that were creating a tough competitive environment, a looming Carbon Pollution Reduction Scheme (CPRS) and a global financial crisis predicted to be the worst yet. In research conducted for its 2009 Environmental Scan, MSA heard that manufacturing and automotive enterprises were bracing themselves with multiple strategies and a positive attitude, prepared to focus on consolidating their businesses and their workforce.

During the year this resolve was tested. Manufacturing was hit hard. According to Ai Group National Accounts – September Quarter 2009, manufacturing’s overall performance during the year was at -7.8% growth. Automotive industries were also down approximately 7.4% on 2008, however factors such as a favourable exchange rate and tax incentives resulted in this better than expected outcome.

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<sup>11</sup> A Country that Makes Things, Building A Stronger More Prosperous Manufacturing Industry In Australia. Paper Presented To The Manufacturing Alliance Roundtable By: Dave Oliver National Secretary AMWU, Paul Howes National Secretary AWU. Canberra October 28 2009. pge 4

## ***MSA Environmental Scan 2010 DRAFT 15th Feb 2010***

In October 2009 the U.S. government reported that employment in manufacturing had fallen by 2.1 million since the recession began. That's about 30% of all U.S. jobs lost. In Australia, Australian Bureau of Statistics (ABS) figures released in May 2009 showed a decrease of 81,000 persons in manufacturing since February 2008 (not including automotive).

It is clear that the GFC has had variable impacts across manufacturing. Those producing consumer products were heavily affected by reduced spending; suppliers to the resources sector were impacted by the retraction in this sector; and exports were down. Other sectors such as automotive and construction, were buoyed by the Government Stimulus Package, tax incentives and infrastructure projects, while enterprises down the supply chain were affected by the drop in orders. As a result, the state of manufacturing today is patchy across the sectors.

Across the board, manufacturing and automotive enterprises are facing reduced orders, production and profit. Enterprises report customer pressure to reduce prices and lead times and note that this has resulted in reduced profit margins.

There is general agreement that the Government Stimulus Package was effective and significantly supported enterprises, employment and industries across affected supply chains.

While in early 2009 many manufacturers were buffeted by previously placed orders, the global financial conditions did catch up during the year and today the slow down in orders is one of the most commonly cited issues that enterprises are dealing with. While there is some lift in orders as we face 2010, it is difficult to know whether these are the result of restocking, or of genuine market flow.

This section of the report provides an update to some of the issues faced by manufacturers, key learnings from the GFC and what the current priorities are for 2010.

### **Continuing issues**

The issues faced by manufacturing and automotive industries this year are essentially not new. In last year's Environmental Scan, MSA identified a range of high level concerns that enterprises experienced as critical elements to the current and future success of manufacturing in Australia. These included skill shortages, and the limitations these impose on capacity and growth; difficulty of attracting new recruits into an industry still marred with a reputation of being about dirty, manual work; and the challenges of competing with overseas manufacturers with low labour costs.

We know that manufacturers today need high level skills to provide a competitive edge through design, product development, specialist expertise, technology and supply chain skills and that manufacturing processes increasingly must be lean and efficient. Management skills are ultimately seen as a critical make or break component of business with success dependent on abilities in business planning, securing finance, human resources and workforce development.

## **MSA Environmental Scan 2010 DRAFT 15th Feb 2010**

Climate change is a major issue that is still to be properly engaged with specific details of a CPRS. Manufacturers are at various stages of preparation for carbon reduction initiatives. Enterprises are worried about additional compliance costs and the impact of a scheme which prejudices Australian manufacturers and does not factor the production practices and environmental impacts of overseas competitors.

Enterprises are still grappling with all these issues however, without doubt, the over-riding issue across the industry sectors in 2009 was the GFC.

### **Make or break management skills**

The past 12 months has tested the mettle of enterprise management skills and it is pertinent that the effectiveness of these skills are examined. From MSA's research, it is notable that those which addressed the challenges proactively and creatively seemed to fare better than those with limited strategies, and were more optimistic about the future. Those which held long term visions with flexible and responsive management styles were more positive about their ability to negotiate with employees, financiers and unions, and strategic about when to reduce and increase work hours, what production to prioritise and how to manage their risks.

MSA is aware of many creative approaches to managing financial crisis pressures. For example, enterprises report accessing training funds and activity to subsidise employment, negotiating employee take up of annual leave and diversifying their product offering. On the other hand, some enterprises seemed ill prepared for navigating the crisis and some even identified their key goal as 'staying in business as long as possible'.

MSA believes that sound business and management skills made significant difference to effectively meeting the challenges of the crisis and it is these skills that will support enterprises to address the myriad of other issues that they face and are yet to manage. Notably, many of those which did undertake training during the downturn did so using the Competitive Manufacturing units and qualifications. These resources target fundamental skills in personnel and systems management at all levels of the organisation and are particularly relevant for improving manufacturing practices.

Research commissioned by the Department of Innovation, Industry, Science and Research (DIISR) in November 2009 adds convincing evidence to this finding that management skills are fundamental to business productivity and ability to navigate varying market conditions. The report, *Management Matters in Australia: Just how productive are we?*, examines management practices in Australian manufacturing firms and concludes that there is 'significant scope for consistent and sustained improvement across key areas'<sup>2</sup>

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<sup>2</sup> Management Matters in Australia: Just how productive are we? NOVEMBER 2009 Report commissioned by the Department of Innovation, industry Science and Research. pge 5

## **MSA Environmental Scan 2010 DRAFT 15th Feb 2010**

Other key findings of the research provide helpful insights into manufacturing's management strengths and weaknesses.

Better performing enterprises tended to be larger operations, especially multinationals with international exposure. Smaller, family owned businesses were rated as having inferior management practices. MSA's own experience can confirm that smaller businesses are struggling on a range of management practices from workforce planning to business strategy and accessing effective support. While lack of resources (both finances and time) and expertise are understandable barriers to improving management outcomes for these enterprises, skilling in this area must become a priority and the necessary support provided in order to improve productivity.

Australia rated only just above average against international benchmarks which raises serious concerns if we are to compete effectively in the long term and maintain a position in the future global economy.

The report concluded that management performance improved with higher level skills and education (of management and non-management personnel) and increased levels of plant manager autonomy.

Australian managers rated particularly lowly in advanced people management skills. These included attracting, developing and retaining talent, and identifying innovative but practical ways of developing human capital to improve performance and add value to the organisation. MSA has also found that these issues are consistently raised as primary concerns and it is increasingly working with enterprises to address these through workforce planning initiatives.

Central to the performance problem appears to be lack of skill and resources in conducting comprehensive workforce skills analysis to determine specific development needs for the enterprise. This information is fundamental to ensure that training and development activity is specifically tailored to meet the needs of the enterprise and adds real value to bottom line outcomes. This message is consistent in findings from research conducted by the Australian Manufacturing Workers Union, Ai Group and MSA and must become a national priority if productivity outcomes in Australia are to improve. A skills analysis approach to skill development must also drive the training system if it is to effectively address industry needs.

The DIISR report notes that *'a single point increase in the management score – a measurement derived from the 18 management characteristics in our scoring grid – is associated with an increase in output equivalent to a 56% increase in the labour force or a 44% increase in invested capital.'*<sup>3</sup>

The need for targeted improvement of the management skills of Australian manufactures is one of the most significant findings emerging from the global financial crisis. MSA believes that initiatives such as the 'Skills4Jobs', 'MSkills' and 'MySkills' website work planning tools, and the increasing focus on lean manufacturing skills, are important strategies to addressing this need. However, more resources in this area are a priority for MSA stakeholders.

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<sup>3</sup> Ibid Pge 6

### **Strategies to keeping skills**

At the start of 2009 enterprises were aiming to employ a range of strategies to up-skill and maintain their workforce during the downturn. While most enterprises report that non essential training activity was put on hold, enterprises worked hard to maintain their skilled workforce and as a result, net reductions were modest.

CEO of Ai Group, Heather Ridout confirmed findings that “Australian companies appear to have understood the lessons of past recessions and are doing all they can to hold on to staff with a view to being well placed to take advantage of growth when it resumes”<sup>4</sup> This is good news for industry.

Many enterprises report that reduced hours and flexible working conditions were key to keeping employees. The recent CEO survey conducted by Ai Group and Deloitte, *Skilling Business in Tough Times*, identified that 39.6% of enterprises reduced work hours, 35.5% froze salaries and bonuses and 32.2% brought forward leave.<sup>5</sup> While actual figures are difficult to obtain and are unlikely to be reflected in statistical collections, it is estimated that the reduction in hours worked was extensive.

Employers reported juggling work arrangements to ensure they maintained the complete range of skills required for production while moderating the demand of a reduced work load. They also noted that employees and unions were supportive of this strategy and that it was often collaborative effort that enabled its success. It may be some time before work hours are fully restored for some enterprises, and this will present a further management challenge for employers. In addition, there will no doubt be employees who will expect some kind of compensation in the new future or will be attracted to other, more stable opportunities.

For some industries, plant closures over the year lead to a significant reduction of skill base. For example, the closure of Pacific Brands in March 2009 saw 1,850 workers retrenched. While retraining and relocation of the workers into other jobs was an important and effective response, only a few of these remained within the textiles, clothing and footwear (TCF) industry. Meanwhile this industry still faces significant shortages of workers with even minimal skill and knowledge in TCF. This experience has flagged a need for industry sectors to develop strategies that extend their reach in keeping skills within their industry.

Some enterprises very successfully accessed training support resources as part of their employment strategy. This is discussed further within the VET Environment section of this report.

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<sup>4</sup> Australian Industry Group and Deloitte, National Ceo Survey (2009), *Skilling Business in Tough Times*

<sup>5</sup> *ibid*

### **Skill shortages still a key concern for industry**

Skill shortages have been the most pressing issue of manufacturers in recent years. The retraction of the mining boom saw, as expected, some return of workers to the employment market but manufacturers were mostly not in a position to secure these skills.

While the urgency of many skill shortages has been relieved somewhat by the downturn in production during the financial crisis, manufactures are adamant that this will again be a central issue in Australia in the near future. Already the resources sector is increasing production and is expecting pre-crisis skill shortages within two years. This will again generate flow on impacts to other enterprises competing for skills.

Specific skill shortages are still being identified and these are detailed in Section 2 of this report and in the Skills in Demand table provided as Appendix C.

Interestingly, enterprises also raised concern in this year's research about 'people shortage' in Australia, rather than just 'skill shortage'. Some have called for an Australia-wide skills system to inform a national workforce planning strategy. MSA received feedback from some stakeholders that they didn't consider skill availability was being taken seriously enough by government. Others look to reviewing work visa allowances to increase access to an international work pool. While there is still debate about this being a real solution to long term skill needs; it is seen as a strategy with inherent training and quality issues; on population levels alone, states such as WA and Qld have limited resources to meet skill demands.

MSA's 2009 Environmental Scan noted that manufacturing in Australia relies on lean manufacturing and innovative design and product development as keys to being globally competitive. These high level skills are still critical to Australia's success but training efforts that target these higher level skills appears to have been especially hit during the downturn. It will be vital that this is addressed as a priority to secure Australia's position in the international market.

### **Sure change on climate change**

In general, industry is still waiting for details of the CPRS to be released so that the impacts on enterprises can be properly assessed. However enterprises appear to be increasingly accepting and integrating environmental values into their organisations. The approach is more often one of addressing a challenge rather than it being a big problem. Of course there are still many 'challenges' yet to overcome.

One common theme that emerged in this year's research was that of current electricity prices. Enterprises have watched these double and some are now being charged at peak rates rather than on a more cost effective user pays model. This is causing widespread concern in the face of potentially much greater hikes once a CPRS and the Emissions Trading Scheme (ETS) come into force. Managing cost and compliance implications of these initiatives are still major factors to be addressed if the erosion of industry viability and support is to be avoided.

## ***MSA Environmental Scan 2010 DRAFT 15th Feb 2010***

Accurate information, risk assessment, strategic planning and workforce development are all essential work that must be engaged to enable progress in the sustainability agenda. Leadership from Government, industry bodies, unions and enterprises are essential from here on to ensure participation at all levels. MSA has been active in integrating sustainability into skill outcomes for all the manufacturing and automotive industries, and targeting emerging skill requirements through new, dedicated units and qualifications. In 2009 MSA released its second sustainability report to assist stakeholders to unpack the issues and move carbon reduction initiatives forward.

Implementing lean manufacturing principles and tools are considered to be a key strategy for sustainable production and enterprises applying these practices are undoubtedly amongst the most sustainable operating today.

Just as skills analysis underpins workforce planning, life cycle analysis at each stage of the value chain, and tools to measure carbon footprints are instrumental in guiding enterprise responses to environmental drivers. MSA is already focusing workforce development in these areas.

### **Business prospects for manufacturing and automotive industries 2010**

“Cautiously optimistic” seems to be the catch cry for 2010. Industry is showing signs of expansion and is expected to grow, albeit at different rates across the range of industries. Recovery is expected to be slow and industry still holds grave concern that it may not have access to the skills needed to make real and consistent progress.

There are still many dangers for enterprises to navigate and it is a critical time that needs careful management. Supports must still be accessible as needed and a proactive approach to reinvesting and building Australia’s skill base must be central to industry direction.

### **The VET Environment**

In the past twelve months we have seen further testing of the VET system's ability to maintain and develop key workforce skills. In particular, there have been many instances where industry has called on government workforce supports to help them through the challenges imposed by the global financial crisis. While there have been success stories in this, there are areas where further improvements can be made.

This section of the report looks at the VET environment during 2009 and identifies key issues raised by industry with regards to VET.

### **A bigger vision for skills**

MSA has consistently received feedback from its stakeholders about the need for a system which is demand driven, responsive to specific enterprise skilling and workforce development needs and connected to a long term skills strategy for Australia. Increasingly, VET activity seems to be embracing this vision and there are many initiatives across the sector that provide evidence of this.

The language of VET is broadening towards workforce development rather than being focused more narrowly on training and there is wider recognition that for training to add value, it must be relevant and applicable to an enterprise workplace. Enterprise based Productivity Places Program (PPP) training has been especially successful in providing targeted skills development, and government funds were significant to enabling the training that took place over the past year. VET providers are becoming more involved with enterprises and government initiatives are driving new regulations and priorities.

However, there is still some way to go. Some enterprises found accessing funding for training during the downturn to be prohibitive when applying a broader workforce development view. The additional creativity to skilling solutions needed during the past 12 months was difficult to accommodate within tight funding guidelines. Some enterprises also found application processes too arduous to pursue.

### **Participation in VET**

The past 12 months has illustrated how important it is for enterprises to be able to efficiently manage workforce issues and be able to access VET processes. Employers have been faced with the challenge of prioritising critical skill and training needs and determining how VET could assist in various employment strategies.

## **MSA Environmental Scan 2010 DRAFT 15th Feb 2010**

Skills recognition also played an important role in the re-skilling and replacement of displaced workers over the year and emphasizes the importance of Recognition of Prior Learning (RPL) processes to an overall skilling strategy. The Australian Manufacturing Workers Union (AMWU) found that some retrenched workers received full qualifications when taken through skill recognition processes; demonstrating the excellent outcomes that can be achieved when efficiently applying VET models.

It is essential that both employees and employers are able to identify skills and match them with job requirements in order to participate more fully and effectively in VET initiatives as well as in their own work planning needs.

Many of the enterprises which did train during the downturn did so by accessing government VET funds, which seems to have played an essential enabling role. However, in many of MSA's conversations with stakeholders, it appears that this has been used especially as an employment strategy rather than a strategic skilling strategy and as such the impacts on real skill needs is difficult to ascertain. Undoubtedly these initiatives have been important in maintaining a skill base and as such are clearly an important element of a broad workforce development strategy.

MSA has been involved in the development of three innovative workforce development initiatives which aim to increase participation in the VET system. The MySkills career and curriculum vitae (CV) manager website supports employee work planning, the Skills4Jobs website is a skills and job matching tool and the MSkillsManager website is a complete workforce development tool to help enterprises build and manage workforce capability. MSA believes that tools like these are central to increasing participation in VET at all levels and help to enhance underpinning workforce development skills.

### **Achieving standards of delivery**

On the implementation side of VET, stakeholders report intense pressures. While there are ongoing shortages of suitable and experienced trainers, some trainers report that employment with public providers is losing appeal. Some of the employment conditions which once added value to this comparatively lower paid occupation (i.e. than if these skills were employed elsewhere), have been removed. Many Registered Training Organisation (RTO) comments to MSA also reflect anxiety about reduced enrolment numbers and the potential impacts on their job security and in turn, trainer workforce shortage.

Meanwhile, industry is expecting that trainers be more able to work with them from a broader workforce development perspective, providing skill need analysis and careful tailoring of training programs. In addition, trainers are increasingly needed to support development of higher level technical skills and lean manufacturing, and widespread drivers for environmental sustainability will further demand skill development for trainers themselves.

Another stress for RTOs is the need to keep up-to-date with Training Package changes which are now occurring continuously, and the consequential changes required in delivery programs.

## **MSA Environmental Scan 2010 DRAFT 15th Feb 2010**

Providing professional development support for trainers is critically important if standards of delivery and the VET system are to be maintained and improved throughout this evolving VET environment. While MSA provides professional development sessions to support implementation of its Training Packages, the needs of this sector to up-skill, maintain currency and develop broader workforce development skills will require much more extensive support.

### **Shortages still on the table**

Shortfall and skill shortages continue to make VET activity a priority. While for many enterprises, the urgency of skill shortages was reduced during the downturn, this is seen as temporary and a lack of access to skills is still seen as one of the key barriers to future growth.

During the downturn the majority of enterprises report holding off on non essential if not all training and higher level skilling, identified as a priority in last year's research, seems to have lost its focus over the year. 2010 will need a reinvigorated approach to avoid significant skill shortage issues in the near future.

While industry is nervous about skill shortages, employer participation in the VET system has room for improvement. Employers still express frustration at an inability to retain skills after they have invested in them and some are not yet demonstrating an ongoing commitment to securing a skilled Australian workforce. There are of course many enterprises that acknowledge critical gains made as a result of training however, there is still work to be done to ensure training and development is more consistently a feature of workplace culture in Australia.

### **Apprentices – skills for the future**

Apprenticeship figures are significantly reduced this year as a result of the GFC. According to figures released by the Australian Bureau of Statistics, the number of people participating in the Australian Apprenticeship Scheme reduced by 25,700 between May 2008 and May 2009. The number of people who applied but did not get an apprenticeship increased from 26,900 to 41,200 (14,300). While many enterprises indicate interest in reconsidering apprentices in 2010, it is difficult to ascertain at this stage whether this will eventuate or whether we will follow the low participation patterns of previous recessions.

Calls for urgent attention to boosting apprenticeships will at least in part be met by the Government's recent funding incentives for enterprises, Apprentice Kickstart, to take on apprentices over the next few months.

For many enterprises, apprenticeships are still offering a mixed bag which has been further tested during 2009. The recent NCVER Occasional Paper *Apprenticeships and Traineeships in the*

## **MSA Environmental Scan 2010 DRAFT 15th Feb 2010**

*downturn*<sup>6</sup> flags the considerable cost of providing an apprenticeship as one of the factors in reduced apprenticeship figures during the last, financially strained year. The paper cites case study research that found that the costs of supervision in particular are high and not offset by low wage costs. The balance is dependent on the value of intangible benefits such as loyalty and quality of skill development. This is in keeping with MSA findings that employers are weighing the benefits of taking on apprentices at this time, especially when the apprentice may leave (as the resources sector regains momentum) and take with them their valued skills. One employer suggested that the apprenticeship scheme would benefit from some kind of contract where employers are compensated by the apprentice if they leave before a reasonable balance is achieved. While this concept may present a new range of issues, it captures this employer sentiment.

The appeal of apprenticeship conditions, wages and career opportunities to the modern day Gen Y is still an area needing close examination if industry is to continue to attract apprentices. Results released in 2009 of a survey contracted by Manufacturing Industry Skills Advisory Council SA Inc (MISAC) into the apprentice experience, has identified a range of areas which could help improve the arrangement for apprentices and potentially, completion rates. The survey report concludes that “Apart from a consistent call for an increase in wages, recommendations for improvements to the apprenticeship program focused on continuous on-the-job learning, including a call for more opportunities for work-place practice and more opportunities to pair with a qualified tradesperson.”<sup>7</sup>

Pre-vocational training pathways are possibly a helpful approach to transitioning young people into apprenticeships and MSA has received support from both enterprises and RTOs for further growth in this area.

Early sign off for apprentices who have met competency requirements, while well supported during times of growth and skill shortage, is another area which is having mixed responses from industry. Employer comments include questioning the value of early release when many skill requirements these days (especially in some sectors) require more complex and wider ranging skills. One suggestion for this tension is to offer an optional post trade study year to build technical and specialist skills needed by industry sectors. Such additional skill development could be accommodated within an apprenticeship arrangement and be commensurate with financial recognition.

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<sup>6</sup> Occasional paper: Apprenticeships and traineeships in the downturn. NCVER. Tom Karmel and Josie Misko. 2209

<sup>7</sup> The 2008 South Australian Apprenticeship Survey: What it means for SA Manufacturing  
Manufacturing Industry Skills Advisory Council SA Inc.

## **IDENTIFIED WORKFORCE DEVELOPMENT NEEDS**

This section explores sector workforce development priorities for 2010.

### ***Aerospace***

#### **Aerospace industry snapshot:**

May 2009 ABS Labour Force figures showed that an estimated 40,000 people were employed in Transport Equipment Manufacturing. The aerospace industry contributes approximately \$1.35 billion to the Australian economy, making it the largest contributor within the transport equipment manufacturing industries

The Aviation Maintenance Sector of the Australian Aerospace Industry covers maintenance performed on aircraft and their components in support of both civil and military aviation by a workforce of about 15,000 civilian and additional Australian Defence Force (ADF) personnel.

#### **The current climate**

During 2009 the aerospace industry was hit again, this time by reduced business and personal spending as a result of the GFC. It follows record fuel prices of 2008 and sits alongside a 13 year drought that has heavily impacted the general aviation sector. Aerospace worldwide has also felt the impacts of militant attacks and threats, and flu panics over the past few years. Now environmental pressures are looming as the industry is called to account for its carbon footprint. Overall however, the Australian aviation industry seems to be entering 2010 optimistically with some positive new developments over the horizon.

This optimism is encouraged by some signs of recovery from the national (and international) economic downturns and is particularly evident in the airline and large aircraft maintenance areas. Major operator Qantas is expanding seat capacity in areas of its business, and this confidence is also reflected in the company's aircraft maintenance training effort with targeted workforce development strategies driving apprentice recruitment and up-skilling / cross-skilling of the existing workforce. A further significant task is the provision of training required to remove exclusions placed on Licensed Aircraft Maintenance Engineers (LAME) licenses in the transition from the old system to the one that is in the process of introduction, in order to gain the full productivity benefits of the new system.

Employment appears to have remained steady with more emphasis on maintenance organisations bringing work back from overseas. Apprenticeship take up has reduced slightly.

The introduction of the Airbus A380 aircraft, and planned new Boeing 787 and JSF fighters also indicates that the industry is moving into the future. More new light aircraft designed and built in

## **MSA Environmental Scan 2010 DRAFT 15th Feb 2010**

Australia will continue to enter the market over the next few years to compete as replacements for the aging general aviation aircraft fleet.

Business prospects seem to be looking pretty good. Growth in air travel is predicted for the Oceania region at 5.1% annually (Boeing predictions) requiring an estimated 670 new aircraft over the next 20 years. But for the next few years, there are still some hurdles for this industry to scale.

Of major concern is the continuing contraction of the general aviation maintenance/ repair sector. There are indications that economic conditions in this area in 2010 will remain dampened, and many businesses will continue to face severe pressures to the point of threatening their survival.

General aviation also faces a significant issue with licensing. For many years the LAME licence holder age spread has been skewed alarmingly towards the higher age levels, indicating that there are fewer young people applying for licenses to replace those retiring from the industry. Possible reasons for this reluctance include the general impact of continuing dampened economic conditions for much of GA (with flow-on low financial prospects), and also perhaps some continuing uncertainty about the impacts of new Civil Aviation Safety Authority (CASA) licensing requirements to be introduced for GA.

Other broad industry trends which are impacting skill development and training pathway requirements include:

- integration of aircraft electrical / electronic and mechanical components and systems
- increased use of composites;
- requirements for civilian contractors working on military aircraft to comply, in some cases, with both Defence and CASA regulations; and
- skill shortages in meeting maintenance work requirements

Airline enterprises are already exploring ways to reduce their carbon footprint and government and community pressures are likely to extend this. Exploration into more fuel-efficient planes and biofuels are two of the strategies currently being adopted.

In mid 2009 Air New Zealand announced a saving of 1.4 tonnes of fuel (approximately 4.5 tonnes of CO<sup>2</sup>) by using a 50/50 blend of second generation jatropha sustainable biofuel and traditional Jet A1 on a twelve-hour long haul flight.

In January 2010 the Virgin Group vowed to run its airlines on environmentally friendly bio-fuel mixes by 2015 and CEO Richard Branson has encouraged his competitors to do likewise by 2020.

Further developments in the sustainability of the aerospace industry are imminent and will need to be monitored to ensure that the training system is responsive to this new agenda.

## **MSA Environmental Scan 2010 DRAFT 15th Feb 2010**

### **Strategic priorities for 2010**

One of the Aerospace industry's high training priorities for 2010 is the completion of the MEA07 Version 3 update designed to meet the new CASA B3 licensing requirements for the light aircraft general aviation sector. In anticipation, MSA has completed new draft units and qualifications and is awaiting the final decision from CASA on the licensing structure so we can proceed for final validation and national endorsement. When this draft training material is endorsed, the aerospace industry will need significant implementation support.

The increased use of composites will help drive MSA activity in reviewing and updating aircraft manufacturing training needs and pathways to ensure new skill implications are captured.

The most significant (and nationally-recognised) skills shortage occupations continue to be Aircraft maintenance trades (in both Mechanical and Avionics technical streams) and this will be an important priority for 2010.

#### **Key growth areas:**

- fibre composites
- the increased integration of aircraft mechanical and electrical/electronic components and systems
- advanced avionics (diagnostics) systems
- engineering excellence

#### **Skill shortages:**

- aircraft maintenance trades – mechanical and avionics
- licensed aircraft maintenance engineers
- through-life Logistics (including maintenance management) skills

### **Automotive**

#### **Automotive industry snapshot:**

The Automotive industry in Australia is a significant contributor to the health of our economy. Australia currently supports a comprehensive automotive supply chain from manufacturing, to retail sales, repair and servicing, which employs over 320,000 people in approximately 65,000 mostly small to medium sized operations. It incorporates passenger and commercial vehicles, heavy machinery, outdoor power equipment, farm machinery, recreational boating, motorbikes and bicycles. Automotive manufacturing exports \$5.82 billion worth of vehicles and components.

## **MSA Environmental Scan 2010 DRAFT 15th Feb 2010**

### **The current climate**

The automotive industry is an industry impacted by multiple stresses. Enterprises face the business and employment challenges of a highly competitive market with increasing competition from imports. Currently imports account for 78% of passenger vehicle sales and this figure is rising by 2% a year,(insert footnote) eight with strong competition emerging across the Asia Pacific Region. Demands for cost efficiency, safety, quality and environmental performance improvements are continual factors for enterprises. Technology changes are constant and the implications on equipment and skilling upgrades present significant challenges across the supply chain.

Further to this, business considerations must also incorporate reducing government assistance, the rising Australian dollar and increases in petrol prices.

While the GFC has impacted the industry by reduced access to customer credit, slowing in domestic and export demand and in the mining industry, automotive enterprises have without doubt benefited from government stimulus spending initiatives and tax incentives. In 2010 the impacts of this are beginning to taper off and industry will need to face the current climate without this support.

In 2009 car sales were down only 7.4% on 2008; exceeding industry expectations by 57,000 vehicles. This compares well against the U.S. experience which saw sales fall by 21.2%. Nine Work vehicle sales grew by almost 40% in the year to November as businesses took advantage of the federal government's rebate scheme.

In January 2010 the Federal Chamber of Automotive Industries released data that showed that car sales have been in an upward trend since the second half of 2009, and industry economic forecasts predict further growth over the next five years. Toyota recently announced an increase of 6% in its worldwide targets and enterprises are reporting lifting optimism as we face 2010.

Both Toyota and Honda will need to hurdle the latest pressures which result from product recall campaigns and the associated bad press. Toyota in particular is very concerned about this.

This year enterprises will need to navigate the planned tariff reduction (to 5%), continuing global competition and the impacts of an Emissions Trading Scheme (ETS), once details are finalised.

On the skills side, it appears that the GFC has generally halted employment and stalled training efforts.

Retail service and repair sector reports minimum impact from GFC to date in fact some report a welcome reprieve from critical skill shortages.

### **Technological skill**

## **MSA Environmental Scan 2010 DRAFT 15th Feb 2010**

Keeping up with technology changes is one of the central challenges for enterprises across the supply chain and difficulty in gaining and implementing updated information is noted by some as a barrier to maintaining currency.

This is particularly true in the aftermarket sector which does not have access to propriety information of the OEMs (Original Equipment Manufacturers).

Materials used in vehicles have changed substantially from what they were six years ago and increasing interchange between electrical / electronic and mechanical features are impacting the skill needs of enterprises.

Government regulations for safety and emissions standards are major driving forces that will continue to impact skills and knowledge requirements and the vehicles themselves. The automotive industry is on the brink of yet another revolution in its method of Powertrain Mechanisms (i.e Hybrid Electric and full electric drive) and weight, and Australia will need to prepare for the arrival and manufacture of this new technology.

Partnerships and strategic alliances are key to ensuring that enterprises and trainers have access to current information on new vehicle technologies. Up-skilling opportunities are critical to ensure ongoing currency of the automotive workforce.

### **Skilling impacts**

On the one hand the technological advancements mean that vehicles are more reliable and require less complex skills for predictable servicing and maintenance work. Whole components are often replaced rather than repaired. On the other, diagnostic and repair skills often draw upon an understanding of integrated electrical / electronic and mechanical systems which incorporate computer technologies and a range of electronic componentry. These divergent skill needs are likely to promote a restructuring of this workforce to more Certificate II level service workers and fewer, more highly trained diagnostic and repair personnel at Certificate IV level and above.

Currently industry reports there are inadequate numbers of maintenance personnel with mechanical and electrical trouble shooting skills.

In the heavy vehicle sector, the return of growth to the resources sector will flow through for increased demands on equipment supplies and maintenance.

### **Sustainability**

Earlier in the year MSA's research found that the industry perceived that climate change issues were 'still over the horizon' for the automotive industry. While details of the ETS are still being finalised, environmental drivers appear to be more front of mind for enterprises with many listing them as primary concerns as we head into 2010.

Australia will be increasingly competing with Asian manufacturers in the small, fuel efficient car market, and technologies such as hybrid vehicles, emission control systems, alternative fuels and improved combustion systems are gaining consumer interest as they enter the market.

## **MSA Environmental Scan 2010 DRAFT 15th Feb 2010**

Government regulations and initiatives such as the *New Car Plan for a Greener Future* will drive significant changes in the environmental outcomes across the automotive industry. The Rudd Government's January release of draft mandatory Euro 5 (from 2012) and Euro 6 (from 2016) emission standards, is further evidence of this.

### **Strategic priorities for 2010**

Increasing sales and retail skills will be a key priority in 2010 as enterprises aim to lift out of the downturn without the assistance of government tax incentives. However government support is still seen as a critical element to the industry's future success.

Competitive manufacturing continues to be a critical skill area in automotive manufacturing and one which must be accessible to ensure these efficiencies can be integrated into enterprise practices. Lean tools such as value stream mapping will be important to identify and reduce waste for both efficiency and sustainability outcomes. MSA's research identifies that enterprises see these skills as central across the board including white collar workers within their organisations.

Establishing ongoing training regimes is seen as critical to up-skill workers on new technologies. Further training opportunities are needed in many new skill areas such as training for electrical drive and energy supply systems engineering, manufacture, repair and servicing.

### **Key growth areas:**

- hybrid and electric technologies
- alternative fuels
- high strength steels
- fibre composites
- electronic management of vehicle controls and fuel management systems
- leadership and management
- customer retention strategies
- compliance
- analytical and diagnostic skills
- supply chain management
- existing worker training
- technology upgrades
- lean manufacturing
- sales
- heavy vehicle maintenance
- body materials technology
- drive train technology
- satellite navigation, telematics, communication, security, voice recognition
- gas technology

## ***MSA Environmental Scan 2010 DRAFT 15th Feb 2010***

### **Skill shortages:**

- electric drive designers / engineers
- electric drive technicians and trades people
- battery designers, technicians
- electric energy supply to automotive infrastructure
- high level maintenance technicians
- draftspeople
- managers and supervisors
- trainers
- competitive manufacturing
- production and assembly workers
- materials handlers
- fabricators, vehicle body makers
- electronic systems (drive-by-wire) – workers in services, repair, diagnostic and systems recalibration
- data acquisition and analysis specialists (vehicle diagnostics)
- field diagnostics, services and repair
- heavy vehicle system rebuilders
- panel beaters
- vehicle painters

## ***Furnishing***

### **Furnishing industry snapshot**

The furnishing industry provides employment for approximately 90,000 employees in predominantly small businesses; 95 per cent of furnishing enterprises employ between one and 20 people. Approximately 68,000 are employed directly in furniture manufacturing.

Furniture making represents more than 50 per cent of the furnishing sector and remains a strong employer of qualified tradespersons. Other sectors include traditional activities such as cabinet making, wood machining, furniture finishing, upholstery and mattress and base making, and occupations such as glass and glazing, picture framing, soft furnishing and interior decorating. There is also the important flooring and floor covering industry area.

Blinds and awnings and security screens are an increasing area of employment.

Furnishing also covers a number of small industries such as piano tuning and repair, musical instrument making and repair, coopering, cane and wickerworking, stained glass and lead lighting.

## ***MSA Environmental Scan 2010 DRAFT 15th Feb 2010***

Maintaining competitive edge and profitability amidst a tide of imports is still one of the key issues facing the furnishing industry. Enterprises are looking to design, service, sales, quality and increasingly lean operations to position themselves more effectively in the market.

The GFC has hit these enterprises, especially those focused solely on the residential building sector. Those across both residential and commercial markets fared better, no doubt due to the government stimulus package. Well known brands perceived themselves as being at an advantage with people returning to familiar brands during tough times.

On the skills side, it appears that not many jobs have been lost and industry reports that most are able to access the skills they need. While some enterprises had inadequate resources to embark on training during the downturn, others used the time to up-skill and strengthen their relationships with employees, and hopefully their employee's commitment to the company.

The strong dollar has seen an increase in imported furniture components.

Some local manufacturers employ semi-skilled persons to assemble products rather than using trades people to perform more difficult tasks. However trades people are continuously in demand.

Another outcome of the stronger dollar is the increased access that small businesses report they have to new technologies, especially computer numerically controlled (CNC) equipment. These efficient machines enable production of the more intricate designs otherwise required of trade level skills. An increase demand in computer skills is accompanying this technology upgrade.

Difficulty in raising financial capital / credit has forced some companies to restructure their operations. Furnishing enterprises like many, have experienced low profit margins and increasing pressure from customers to reduce costs and lead times. Plans to export have in most cases been put on hold.

The ETS has many very worried that additional costs will further strain profitability and pave the way for more imports. Furnishing enterprises are aware that they will not be protected by a powerful lobby to secure compensations or supports (like Emissions Intensive Trade Exposed enterprises).

Enterprises are keen to engage in skill development around sustainability issues in order to prepare for climate change initiatives such as the ETS. This would involve life cycle analysis, materials sourcing (for example timber), energy efficiencies and strategies to absorb or pass on associated costs.

Other industry issues include the high expectations of customers who want new and different products, putting emphasis on ongoing research and development investment (costly for these mostly small enterprises) and availability of materials.

## ***MSA Environmental Scan 2010 DRAFT 15th Feb 2010***

### **Strategic priorities for 2010**

Sustainability is a big priority for furnishing industries and MSA's workforce development initiatives will offer some support in this area. Enterprises are watching closely to determine the public take up of sustainability and demand for more sustainable furnishing products.

Continual up-skilling and updating of skills and technologies will be a priority for 2010 to ensure the workforce is ready for the future market needs. These include demand for more technically sophisticated products that will emerge with sustainability and as companies strengthen their stand in quality, well designed, Australian products.

### **Key growth areas:**

- nested base manufacturing
- flat panel construction
- batch of One technologies
- kitchens and bathrooms – manufacture, installation and design,
- CNC
- CAD
- specialised cutting and sewing (upholstery)
- sustainable designs and products
- manufacturing of complex and one-off designs
- short lead times

### **Skill shortages:**

- supervisors
- managers and management skills
- kitchen and bathroom installers, manufacturers, designers
- cabinet makers
- CNC programmers and operators
- floor finishers/polishers
- carpet / vinyl layers
- upholsterers
- industrial painters
- french polishers
- project managers
- solid wood Tradespeople
- wood machinists

## **Laboratory Operations**

### **Laboratory operations industry snapshot:**

Laboratory operations incorporate a variety of science-based occupations across many industries. There are no Australian New Zealand Standard Classification Code (ANZSCO) occupations which wholly describe the work of analysts, technical officers and assistants, laboratory assistants /aides /attendants, sampler/testers, and those operators who undertake limited quality assurance duties, and so it is not possible to accurately estimate the number of personnel in this group or their contribution to the Australian economy.

### **The current climate**

In its 2009 Environmental Scan, MSA identified that Australia is in short supply of this diverse group of technical and scientific employees, and this hasn't changed for 2010.

In fact, the science profession as a whole suffers from inadequate workforce development strategies. Attracting technicians into the industry, especially with adequate maths and science competency is a primary challenge and remuneration and retention strategies are not securing the available workforce. Australia also loses many of its best postgraduate students and researchers to overseas offers of jobs and wages that are not available at home.

Adding to this workforce challenge, training delivery and skills development is hampered by lack of resources, experienced trainers and access to current scientific instruments and equipment. Partnerships with industry and industry donations of equipment are critical to underpinning this sector's skill development opportunities. Government tax incentives could encourage donations of essential and expensive equipment to help resource training facilities.

While industry has also raised the concern of a lack of succession planning, MSA believes that this is just one aspect of the broader skill shortage concern.

At the same time, increasing compliance, quality and safety standards, and product and process information requirements are all driving an increasing need for skills in this area. Environmental compliance and sustainability drivers will only serve to increase this pressure for this sector.

### **Strategic priorities for 2010**

Maintaining a focus on bringing people into the industry remains a high priority for laboratory operations. Possibly this will involve accessing new markets of potential trainees and positioning

## ***MSA Environmental Scan 2010 DRAFT 15th Feb 2010***

the industry well as a career choice with a strong future, appropriate remuneration and multiple vocational pathways.

On the delivery side, increasing capacity and access will be important to ensure continuing development of this workforce. MSA's priority will be to support implementation of the newly endorsed MSL09 Training Package.

The level of maths and science literacy is a national concern, and VET will need to accommodate up-skilling in these areas through bridging courses and additional supports.

### **Key growth areas:**

- biotechnology
- genetic engineering
- immunology
- audit systems
- new technologies –e.g. nanotechnology

### **Skill shortages:**

- construction material technicians / testers
- soil testers / mineral assay
- scientific glass blowers
- associate degree level scientific personnel
- lab technicians (chemical / food / pharmaceutical / environmental)
- environmental field hands

## ***Metal, engineering and boating***

### **Metal, engineering and boating snapshot:**

The manufacturing industry is the third largest employing industry in the Australian economy, employing 1,008,200 people (or 9.3% of the total workforce) as at February 2009. There are a wide range of industry sectors and jobs within the industry.

The metal, engineering and boating sector include all of the people who conceive, design, manufacture assemble, install, repair, package and sell the manufactured products.

People with metal and engineering skills also work in many other areas including building and construction, mining, health, the food areas and hospitality. MSA's coverage extends to well over 500,000 workers.

The industry has been active in reshaping itself over the last decade and has embraced new technologies, innovation and more efficient production practices.

### **The current climate**

Exposure to the international market has increased due in part to some relaxation of import restrictions. As the industry competes in the world market it requires the use of more specialised skills that focus on improving business efficiencies. The metal and engineering industry has been active in reshaping itself over the last decade and has embraced new technologies, innovation and lean production practices. Around 70% of the companies in the manufacturing and engineering sector today are either direct exporters or suppliers to an export company.

The constantly evolving regulatory framework and global integration environment significantly impacts the direct and indirect costs imposed on these industries. Further regulation as a result of carbon reduction initiatives are a key concern for enterprises.

Enterprises have experienced profit margins drained over the year with reduced orders and customer pressure to reduce prices. This has resulted in a significant slow down in training budget expenditure.

The metal and engineering industry is still experiencing significant skills and labour shortages. While somewhat mitigated by the recent global slowdown, the need for skills is still present in occupations across the industry and will again peak with the rise of the resources sector.

In a recent National Ai Group/Deloitte CEO Survey, the most prominent category identified for skill shortages was technicians and trades workers at 28.1% of companies. The second largest occupational area was engineers at 15.3% of companies. Other occupational areas reported included labourers and process workers (7.0%), managers (5.9%) and apprentices and trainees (5.9%). All these shortages affect enterprises right across the metal, engineering and boating industries.<sup>8</sup>

There is an increasing need for skills across areas such as mechanics, electrics, fitting, machining and boiler making. Higher level skills across the board are also in high demand to work with increasing sophistication of materials, processes and technologies, and there is growing interest in post trade training to meet this need.

Further long term effects of globalisation and enterprise specialisation are expected to result in more job losses and intensify labour challenges.

There are a large percentage of low skill workers across these industries without post school qualifications and job losses are most likely to be in these low skilled positions. In addition, the ageing workforce and lack of young people entering the industry is becoming an increasing priority across these industries. These issues signify an important challenge to industry to review current and future workforce needs and put in place long term skills plans. Enterprises also report

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<sup>8</sup> Australian Industry Group and Deloitte, National CEO Survey (2009), Skilling Business in Tough Times

## **MSA Environmental Scan 2010 DRAFT 15th Feb 2010**

that many jobs are changing and that there is a need for updated job modeling to inform planning processes.

### **Strategic priorities for 2010**

Key priorities across these industries for 2010 include maintaining key workers and the enterprise capacity. Across the board it is critical that skill shortages are proactively addressed and that renewed focus be applied to the engagement of apprentices in order to secure skills for the future.

Whilst larger businesses are more aware of their capabilities and workforce skills development needs the whole of industry is facing the challenges of changing technology, a shifting labor demographic and an evolving complexity and breadth in requirements for high technology skills. These are all high priority areas for 2010 and MSA is continuing to respond to industry needs through continuous improvement plan processes. The MEM05 Metal and Engineering Training Package is a top priority for MSA in 2010.

### **Key growth areas:**

- advanced manufacturing
- advanced fabrication techniques
- welding
- mid-age apprentices
- international trade qualifications
- diploma level automation skills
- integrated systems
- research equipment for alternative energy forms
- green products
- nanotechnology
- defence
- online technology
- project management
- international benchmarking
- equipment / technology
- automatic machining
- robot programming.

### **Skill shortages:**

- fabrication trades and advanced trades
- boilermakers
- sheetmetal workers
- welders
- induction furnace operators

## ***MSA Environmental Scan 2010 DRAFT 15th Feb 2010***

- casting dressers
- foundry tradespeople including moulders and pattern makers
- metallurgists at advanced trade and technician levels
  
- mechanical trades and advanced trades
  - maintenance fitters
  - mechanical fitters
  - advanced trades in hydraulics and pneumatics
  - plant and heavy transport mechanics
  - machinists
  - locksmiths
  - refrigeration and airconditioning
  - instrument technicians
  
- electrical trades and advanced trades
  - electricians including HV/DC motor control
  
- operators, setters and programmers for advanced manufacturing systems
- process control specialists
- engineering designers including 3D CAD
- draftspeople
- engineering technical officers
- architectural hardware specifiers
- engineering managers
- tool makers

## **Process manufacturing**

### **Process manufacturing industry snapshot:**

Process manufacturing incorporates the chemical, hydrocarbons and refining industries (covered by the PMA08 Training Package), plastics, rubber and cable making (covered by the PMB07 Training Package) and manufactured mineral products (covered by the PMC10 Training Package).

May 2009 ABS figures show that 98,000 people were employed in the chemicals, hydrocarbons and refining industries. This figure includes both basic ferrous (38,000 people) and basic non-ferrous (31,000 people) metal manufacturing. They cite 39,000 people were employed in the plastics, rubber and cabling industries.

The chemical and plastics industries turnover approximately \$32.5 billion a year and represent between 9 and 10% of total value added.

The May 2009 figures also show that an estimated 35,000 people were employed in the manufactured mineral products industry. The majority of people were employed in the cement, lime, plaster and concrete product manufacturing sector (an estimated 12,000 people).

### **The current climate**

Process manufacturing industries faced an uncertain year in 2009 with anticipated falls in production and international demand for Australian resources. The global downturn certainly realised these concerns with enterprises listing costs of production, reduced sales and low profit margins as primary concerns in the current climate. As we enter 2010, the resources sector appears to be returning to a growth cycle which will no doubt flow on to these enterprises. However there are still serious ongoing issues to navigate.

These include:

- high levels of regulation that affect these enterprises and demand extensive monitoring, communication and documentation to meet compliance requirements;
- anticipated impacts from environmental drivers on these energy intensive, highly visible operations including the call for environmentally sustainable products and processes; and
- skill shortages.

In addition, events and developments over 2009 have implications for the process manufacturing Training Packages.

## **MSA Environmental Scan 2010 DRAFT 15th Feb 2010**

### **Fuel storage and distribution**

A tragic fatality in Victoria in 2008 has brought skill development for fuel storage and dispenser workers up to a high priority for MSA in 2010. MSA was approached in 2009 to address a skill and training package gap for those working in the manufacture, installation, service, repair and modification of petrol, diesel and gas dispensers, and their associated storage systems at service stations, depots and similar installations.

Key issues MSA will be working through include a lack of industry recognition of the hazardous nature of the work and the varying licensing requirements across the country. For example, licensing in New South Wales maps to plumbing qualifications with additional top-up training in gas. However, as this work does not involve handling water and drainage, plumbing is clearly not the most logical fit and is likely to create barriers to getting the right skills.

### **Skills across the sectors**

As a sector, process manufacturing is becoming more concentrated as a result of international market pressures and reducing demand for older style product as the focus on environmental credentials increases.

In September 2009 the closure of Huntsman Chemicals' Footscray plant was announced after years of losses. Chemical plants in Australia all operate at a much lower capacity than international standards, making staying competitive in a global market extremely difficult.

However there seems to still be good employment and skilling opportunities across process manufacturing.

Those manufacturing chemical products with lower environmental impact and the more efficient modern operations stand to fare better in the future than traditional operations. The Chevron Gorgon Gas Field project, Western Australia is set to employ *en mass* and create a demand for skills and training – drawing on an already tight market; and plans for three Liquid Natural Gas (LNG) plants in Gladstone will increase employment opportunities and skilling needs in Eastern Queensland.

Increasing interest in coal seam gas will also impact on the skill needs of this industry. Coal seam gas involves thousands of wells that require monitoring skills at the Certificate II level (unlike oil and traditional hydrocarbons monitoring which require Certificate III). These wells are mostly located in regional areas, possibly providing opportunities to farmers looking to support rural living.

In 2009 MSA examined the skill needs of the coal seam gas industry and drafted new units to support this important growth area. These draft units will be prepared for inclusion in the PMA08 Training Package in 2010.

The manufactured mineral products sector has not experienced any major changes over the past 12 months. However the possibility of importing clinker (partially processed cement), is a significant threat which would have the effect of lowering the skill level requirements in cement processing in Australia.

## **MSA Environmental Scan 2010 DRAFT 15th Feb 2010**

A need for qualified hydroblasters has also emerged from the process manufacturing industries and MSA is currently looking at appropriate skill pathways within its MSA and MEM Training Packages. This skill has significant safety issues (hydroblasting can cut through steel) and will most likely need full qualification level training.

Another event in 2009 that will impact skills was the discovery of a Training Package gap around the operation of Joule-Thomson devices in cryogenic processes. This new unit will now need to be brought into the PMA Training Package to ensure its currency.

### **Steel making**

Steel making is part of the process manufacturing industries. This is an energy intensive, high carbon industry with chemical processing that naturally results in high carbon outcomes. Eventually the steel sector will be under pressure from the CPRS and access to sustainability solutions will become more important. While the steel industry traditionally manage their skilling needs outside the national training system, the drive for sustainability is likely to make some of MSA's sustainability initiatives an appealing option.

Currently, MSA is aware that some RTOs are looking to the MEM, MSA and PMA Training Packages to meet steel industry training needs. However, some of the 2008 changes to the Chemical, Hydrocarbons and Refining Training Package included units of competency relevant to alumina smelting and other metallic minerals processing. In 2010 MSA will investigate the possibility of including steel processing in this Training Package to address skill needs and provide appropriate pathways for employees.

### **Sustainability**

The process manufacturing industries have multiple impacts from environmental drivers. Their operations are highly visible, they are energy intensive and produce products which will increasingly be judged on environmental credentials (for example plastic bags). For some operations, weather itself is a factor – 2009 also saw the closure of Nylex after battling years of drought conditions. However the industry is making some inroads into its environmental standing. A report commissioned by the Plastics and Chemicals Industries Association (PACIA) released in 2009, the '*2009 National Plastics Recycling Survey*', confirmed that plastics recycling and recovery is reaching record levels in Australia.

The report notes that 36.2% of all plastic was recycled in 2008, exceeding targets set under the National Packaging Covenant. This is certainly excellent news for the 75 polymer reprocessing companies across Australia.

Plastics have lower carbon footprint than steel and as such are likely to have many opportunities for growth in the near future. This can be seen in the growth of fibre composites, increasingly being used by Australia's large boat builders.

## **MSA Environmental Scan 2010 DRAFT 15th Feb 2010**

### **Strategic priorities for 2010**

Growth areas continue to be in Coal Seam Methane / Coal Seam Gas production, LNG and geosequestration. Sustainability is a top priority for these industries which will require focused development in products, processes and workforce development.

Skilling in compliance monitoring, communication and documentation is a strong focus and will increase when the CPRS details are confirmed.

New plastics and processing methods are a growth industry and MSA will need to keep abreast of new developments in this area.

MSA has also received strong interest from industry that new, higher level, flexible qualifications be considered for process manufacturing. This is in order to facilitate continuing pathways and incorporate the breadth and depth of skills required at this level. MSA has agreed to explore this need as one of its 2010 priorities.

Attraction and retention of workers continue to be a priority area of increasing importance as this workforce nears retirement.

### **Key growth areas:**

- 3D measurement
- technical and operating system with IT skills
- sustainability
- plastics and fibre composites
- carbon capture and sequestration

### **Skill shortages:**

- mine manager
- production process engineer
- engineers
- cement specialists – production and operations managers
- tradespeople
- chemical processing – supervisors, technicians, operators
- tradespeople
- glass blowers – flexible / scientific
- belt repairers
- IT / engineering
- engineering design and management including 3D CAD
- industrial electricians
- metal trades incl. specialist welders, fabricators, maintenance fitters
- instrument technicians
- GSO (marine)

- chemists
- chemical engineers
- process operators
- production managers

## **Textiles, Clothing and Footwear (TCF)**

### **TCF industry snapshot:**

The TCF industry covers design, manufacture and supply of textile, clothing, footwear and leather products. It employs approximately 41,900 people in mostly small businesses and contributes \$3 billion in industry value add, around 3% of all manufacturing.

### **The current climate**

The textiles, clothing and footwear (TCF) industry has been in a fight for survival for many years now and the last 12 months has brought little comfort for those battling what must be one of the most globally competitive climates across manufacturing. But even while the atmosphere across TCF is often tinged with frustration and resignation, there are enterprises which are managing to carve out a thriving domain to take this industry into a new era.

In its 2009 Environmental Scan MSA identified that the key issues facing TCF enterprises were:

- intense global competition due to policy and trade changes over the past 10 years (*imports were at five times that of exports*)
- the impact of restructuring on the TCF industry and the importance of maintaining a critical capacity and skills base across the supply chain.

Enterprises maintained that there were specific qualities that would help them succeed. These were:

- a focus on high value, high quality products
- targeting niche markets
- innovative design and product development
- efficient and lean manufacturing practices
- updated technology
- smaller production lines / batch sizes
- market responsiveness, and
- ethical products.

## **MSA Environmental Scan 2010 DRAFT 15th Feb 2010**

Ultimately in 2010, TCF faces the same issues however MSA's research can now add some further insights to this picture.

The GFC undoubtedly affected this industry over the past 12 months. 2009 saw the closure of both large and small players with not only jobs lost, but also crucial industry skills and expertise. It is estimated that at least 40 major TCF enterprises ceased trading, and with them went approximately 1,787 jobs<sup>9</sup>. Clearly this was a serious blow to the industry's already ailing skills base.

The impacts on consumer spending and the retail sector have reverberated through the TCF industry with the result being a slow down in orders and reduced profitability. While this in the main has intensified the difficulties faced by almost all TCF enterprises, some report unexpected wins. For example, the reduction in orders has meant that purchasing has in some cases shifted back to small quantities from domestic suppliers, rather than large volume overseas suppliers. While the extent of this is unclear, it does illustrate the volatility of international supply chains and the need to be outward looking and responsive to emerging shifts and opportunities.

Unfortunately this does not seem to be a strength of TCF enterprises generally. Some enterprises appear to be inward focused and so despondent about their future that they are not looking for the opportunities. Others express that the variability of work makes it impossible to plan.

In recently conducted research the Council of Textiles and Fashion Industry Australia (TFIA) discovered that many TCF enterprises do not have active business planning processes. It found that 50% of enterprises surveyed did not have a mission or business vision statement and 25% of enterprises did not have a strategic plan at all. Some enterprises noted their goals as staying in business until the work dries up! For whatever reasons, this lack of planning and business skills leaves the TCF industry exposed and poorly placed to maintain a position in the Australian economy.

The industry appears to be aware of this need with management skills being identified as one of its most important issues and priorities, according to research conducted for this Environmental Scan.

Those enterprises who are focused on future goals demonstrate more positive outcomes across the board. The TFIA estimates approximately 10% of today's TCF enterprises have this positive attitude accompanied by sound business skills. These enterprises are innovative and looking outwards to capture new market opportunities.

The experience of the GFC has highlighted the need for sound business and management skills to navigate today's challenging business climate.

Consolidating skills and training during the downturn was not a feature of TCF enterprises due to the lack of resources available and business confidence.

Skill shortages again rated as a top issue for TCF and a major barrier to growth.

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<sup>9</sup> Figures estimated by the Textiles, Clothing & Footwear Union of Australia (TCFUA). 2010.

## **MSA Environmental Scan 2010 DRAFT 15th Feb 2010**

Key skill shortages include those which relate to specific technical expertise as well as those, such as international supply chain management, design and product development, which relate to the new industry landscape.

While the lower skilled production jobs are increasingly moving overseas with the larger scale operations, Australian enterprises need technical and skilled workers to conduct the more complex jobs that are on the market. Some employers see this alone as indicating a need to boost the rigour of training, rather than for example, reduce time requirements of apprenticeships. Developing those higher level skills in production, design and supply chain management are critical to the industry's long term prospects and are a priority for the industry.

Overall it seems that TCF needs to come to grips with its shrinking skill base and embark on focused workforce planning to target and develop its critical skills across the industry.

TCF stakeholders were disappointed to learn that their skill shortages were not recognised in the Government's Skills in Need list which could have facilitated training through the Productivity Placement Program (PPP).

TCF does not appear to be benefiting from current training support mechanisms as much as it could. As well as experiencing barriers to accessing PPP funding, many TCF enterprises appear to be unable to meet the requirements for the Skills for Growth program. The program's focus on whole qualifications is out of reach for many TCF enterprises which cannot afford such a demanding commitment. A strategic approach to addressing skill gaps is likely to be a more appealing approach to meet these skill needs.

TCF enterprises face sustainability challenges from the sourcing of materials, conduct of operational processes (including those outsourced overseas to possibly less environmentally friendly enterprises), durability and longevity (fashion for example almost has a built in obsolescence) and waste. Consumers are becoming more educated and discerning and TCF enterprises will need to embrace these new priorities.

### **Strategic priorities for 2010**

Sourcing and developing skills are one of the most pressing issues for TCF enterprises. These include technical, management and business skills. Given the challenges this industry has in terms of future planning, it is likely that management skills may be required to underpin a more proactive approach to training and workforce development.

Skills and work opportunities in design, development and international supply chain management are still critical priorities to TCF and offer exciting new directions for the industry that are more likely to appeal to the incoming generation. Online marketing is a growth industry that will offer TCF significant opportunities and help facilitate expansion into international markets.

## **MSA Environmental Scan 2010 DRAFT 15th Feb 2010**

Textile printing is another growth area calling on design, development and technical skills. Industry stakeholders are currently planning to launch a Centre of Excellence for this industry at Kangan Batman TAFE (Victoria) in September 2010.

There are many TCF enterprises saying niche, Australian labels, innovation, technology and new design directions. Without doubt the TCF industry has much to offer Australia's international reputation in manufacturing, our economy and our future workforce. We must support this industry to emerge from these difficult years with purpose and definition. Access to quality training and development will be instrumental in making this happen.

### **Key growth areas:**

- manual and CAD Patternmaking
- international and online marketing
- supply chain expertise
- design
- more customised products
- technical textiles and non-wovens
- eco / sustainability products and expertise
- products and services for a new generation of young people and an ageing population
- recycling / return policy
- niche manufacturing
- Australian made
- textile printing

### **Skill shortages:**

- machinists
- knitwear linking specialists
- hand sewers
- patternmakers (manual and CAD)
- product developers
- textile mechanics
- pressers
- yarn specialist
- garment technician
- custom shoe makers - Medical Grade.
- canvas workers and sailmakers
- dry cleaning operators

## **CURRENT IMPACT OF TRAINING PACKAGES**

### ***MSA07 Training Package***

MSA07 Manufacturing Training Package continues to gain support from industry and MSA has extended its inclusions over 2009. New releases over the year have included:

- addition of elective units for structural steel detailing for Manufacturing Technology qualifications
- addition of new Competitive Manufacturing Vocational Graduate qualifications and elective units for metallurgy
- addition of new qualification for surface preparation and coating application
- addition of Trade Measurement units, two qualifications and skill sets for Trade Measurement Inspectors and Verifiers.

The National Measurement Institute (NMI) will use the newly endorsed Training Package components for trade measurement when it takes national responsibility for this activity in June 2010. NMI has been heavily involved in this development and has also developed recognition kits and processes for assessment to support delivery and assessment of the standards.

While only recently released, the new qualification in Surface Cleaning and Coating Application is already attracting solid industry support with promising early signs of take up.

The highly flexible and useable process manufacturing qualifications within MSA07 have proven to be a very popular catch-all for enterprises that don't fit easily or readily into areas traditionally covered in the PMA, PMB and PMC Training Packages. Additionally, the emphasis in a number of 'cut, fit and assemble' workshops or even more straight forward assembly only workshops now have the opportunity to increase the base skill of their workers. The new qualifications provide a benchmark for these enterprises to assess their skills, identify skill gaps and target development activity. The flexible packaging also allows key skills in lean manufacturing to be incorporated.

### **Competitive manufacturing**

The Competitive Manufacturing units and qualifications continue to attract widespread industry support and are proving to be an important resource for the manufacturing industries.

The use of the skills covered in the Competitive Manufacturing qualifications extends beyond the boundaries of manufacturing. This is partly as a result of the greater emphasis on value chain concepts and also a recognition that the principles of lean manufacturing are equally valid in other areas such as service administration and logistics industries.

## **MSA Environmental Scan 2010 DRAFT 15th Feb 2010**

The need for development of Vocational Graduate qualifications in Competitive Manufacturing was identified by MSA in 2007 in response to requests for more in depth training and professional development for individuals who already had some skills or training in Competitive Manufacturing practices. The MSA decision to provide professional development as the target approach for the graduate qualifications meant that it was also appropriate to shift the skill level of the new units of competency further towards the leading edge of competitive manufacturing practice. The emphasis in the Vocational Graduate qualifications is mostly focused in two areas:

- skills associated with improving workplace understanding and implementation of competitive manufacturing practices;
- skills associated with improving the performance of a value chain as distinct from a focus just within an enterprise.

MSA will be undertaking a major review of the Competitive Manufacturing units and qualifications in 2010. This work will include an analysis of the take up of units and qualifications, examination of the alignment and structure of existing qualifications and on the content and scope of existing units. MSA is also considering renaming the qualifications to reflect their broader industry application. The findings of this research will be used to direct further development of these components during 2010.

### ***Aeroskills***

The Aerospace industry is covered by the MEA07 Aeroskills Training Package. There are 16 qualifications in the Training Package ranging from Certificate II to Advanced Diploma level<sup>10</sup>. This Training Package was released in March 2008.

These aircraft maintenance qualifications support comprehensive skills development needs for aerospace industry personnel involved in the maintenance, repair and overhaul of aircraft and aircraft components. Specifically designed qualifications meet the competency requirements identified by CASA for people to become Licensed Aircraft Maintenance Engineers.

In terms of meeting broader public needs, the MEA07 Training Package has been established as a core training platform relied upon by civil and military safety regulators to deliver their minimum specified aircraft maintenance training needs for Australian aviation safety.

Unlike other industry sectors covered by MSA, minimum aircraft maintenance trade qualification for the aerospace industry is at Certificate IV level. Due to this, the number of training contracts at Certificate IV level is significantly higher than in any other sector, and makes up the majority of contracts in Aerospace maintenance trade training programs.

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<sup>10</sup> National Training Information Service [www.ntis.com.au](http://www.ntis.com.au)

## **MSA Environmental Scan 2010 DRAFT 15th Feb 2010**

Significant implementation support will be required to promote take up of the new qualifications and units of competency which reflect CASA's projected B3 licensing requirements when finalised.

PPP outcomes are showing positive gains in this industry with a PPP project at Qantas successfully implementing RPL and gap training to help existing workers transition to sought-after aircraft LAME trades (in this instance in the mechanical technical stream). The project provides a model example of how effective PPP initiatives can be.

### **Automotive**

The AUR05 Retail Service and Repair Training Package is currently undergoing a major review as part of MSA's continuous improvement plan. This is one of the most used Training Packages across all industries and accounts for 8% of all apprentices and trainees nationally.

The industry, both on the supply and demand side of training have been consulted and engaged in the review process. Areas of particular interest to industry include:

- new loss assessor qualification
- mapping of outdoor power equipment requirements to skill sets within the AUR package
- additional and modified units within the heavy vehicle sub-sector
- review of marine skill sets
- review and examination of motor sport requirements with a focus on track officials and volunteers
- review of the package in relation to the bicycle sub-sector
- review with additions and deletions to the package in relation to vehicle body sub-sector.
- review of qualification structures to ensure qualifications reflect current industry work roles, especially at the higher 'master technician', Certificate IV level
- investigation and development of Skill Sets for licensing and regulatory requirements

This review and update will be a major MSA focus for 2010.

The AUM08 Automotive Manufacturing Training Package covers skills across the manufacture and assembly of vehicles and components. This package will undergo a review in the future and MSA is beginning to engage stakeholders in preparation for this process.

MSA will investigate issues such as the current low enrolments in the Certificate IV qualification.

## ***Furnishing***

The LMF02 Furnishing Training Package includes components which have been added in recent years and some components which are now quite dated. In 2009 MSA conducted a redevelopment project to explore current industry needs and proposed a new structure to increase flexibility and currency of the qualifications. However industry feedback asserted that newer qualifications were still to be tested and a 12 month delay in finalising the Training Package directions was granted.

In practice it appears that the Training Package itself offers adequate coverage and flexibility and is meeting most industry needs. MSA is aware however that industry finds delivery options to be less flexible and well suited to enterprise needs and that further attention is needed to make training plans more relevant to employers. This mismatch appears to be encouraging enterprises to use other training options such as the competitive manufacturing qualifications and is possibly one of the reasons for a high drop out rate. Advancement in composite materials has also seen enterprises become more dependent on supplier training in order to keep their competitive edge and knowledge current.

Take up of trade qualifications has reduced in recent years and MSA proposes a couple of reasons for this.

Methods of manufacturing in the furniture industry have broken some trade skills into specialist areas. This is also seen as a driver behind the use of competitive manufacturing as an alternative to trade qualifications. Tradespeople today are less likely to see a job through from beginning to end and many work roles involve assembling imported components or conducting limited production activities. Most enterprises couldn't now provide all the skills needed to ensure an apprentice would meet the requirements of a trade qualification.

Funding is another area that has contributed to the lack of uptake in trade level qualifications. Some areas within LMF02 such as piano tuning and picture framing cover slim markets and are not listed for the government PPP. The lack of funding incentive and the low numbers act as a disincentive to providers with most not even registering these qualifications on their scope. Meanwhile, these sectors are struggling to attract skills and maintain these professions in Australia.

The new kitchen and bathroom qualification, endorsed in 2009, has been well received by industry but is still to be supported through the Technical and Further Education (TAFE) system to encourage implementation. Some TAFEs have expressed concern that the qualification requires onsite assessment that will require flexibility in delivery. Again, this appears to be a delivery issue which will need further support in 2010.

## **MSA Environmental Scan 2010 DRAFT 15th Feb 2010**

While MSA has agreed to hold off a major redevelopment of LMF02, it has a range of continuous improvement activities planned for 2010. These will target industry needs within current qualifications.

### **Laboratory Operations**

The Laboratory Operations Training Package has been very successful in meeting industry needs. 2009 saw the endorsement of MSL09 which now includes the following critical expansions:

- new Vocational Graduate Certificate in Instrumental Analysis – this qualification will target high level, practical skills often missing in today’s university graduates;
- new units for the construction materials testing sector –the biggest testing area in Australia
- new units to cater for the needs of the mineral assay sector covering robotic sampling (and gold assay)
- new unit to cover the review of results and issue of reports. This will help to ensure that quality assurance checks of reports by signatories and their delegates meet industry standards.
- greater flexibility via improved packaging of qualifications and availability of specialisations for Certificate III and IV as well as Diploma qualifications.

### **Metal, engineering and boating**

The metal, engineering and boating industries (excluding automotive and aerospace manufacturing) are covered by MEM05 Metal and Engineering Training Package. MEM05 is the main training package covering engineering and maintenance related trade, technician and para-professional training and at these levels the coverage of the qualifications is wider than the metal and engineering industry. This Training Package is currently being reviewed.

New metallurgy units were developed in early 2009 to provide post trade skill options for advanced foundry tradespersons. These units were intended for inclusion in the MSA07 Manufacturing Training Package, but due to the long development delays of *training.gov.au* and potential access issues, the units have been endorsed within MEM05 as electives in *MEM40105 Certificate IV in Engineering*.

The importance of metallurgical skills has grown significantly in recent years. This has been driven by both increased quality requirements by customers and advances in technology. Traditionally metallurgical skills in foundries were exercised by an industrial metallurgist usually trained in the VET system at a Diploma or Advanced Diploma level, although the employment of degree qualified metallurgists is also common. The endorsement of these new

## **MSA Environmental Scan 2010 DRAFT 15th Feb 2010**

units will provide further career pathways for this sector and MSA will be supporting implementation in 2010.

The traditional method of relying only on the application of empirical trade skills at the individual mould making and casting stages is also not feasible as most customers have now come to expect the greater quality and higher specifications possible with newer test equipment. The solution for most foundries is to train senior moulders to undertake the more common and simpler tests associated with individual melting and casting operations thus leaving the metallurgist free to develop specifications, provide general technical supervision across the foundry and to undertake the more difficult tests. *The inclusion of the four units as electives in MEM40105 Certificate IV in Engineering has met this need.*

MSA also released a new qualification MSA30309 Certificate III in Surface Preparation and Coating Application in 2009 to meet an industry need for qualified operators who can suitably prepare surfaces and apply protective coatings.

Protective coatings need to be applied to much of public infrastructure (e.g. bridges, pipelines), some modes of transport (e.g. ships, submarines), and many large public and private structures (e.g. hydrocarbon, chemical plants, off shore oil/gas platforms) in order to prevent corrosion. The Commonwealth Scientific and Industrial Research Organisation (CSIRO) estimates the cost of corrosion in Australia to be around \$13 billion per year. This new qualification and units are highly anticipated by industry to secure the necessary skill base to assist in improving the quality of work and further address this significant cost. MSA will be supporting implementation in 2010.

MSA has extensive work planned for 2010 to review the MEM05 Metal and Engineering Training Package to update content and formatting, and develop new materials for emerging and higher level skills.

### ***Process manufacturing***

#### **Chemical, hydrocarbons and refining**

The PMA08 Chemical, Hydrocarbons and Refining Training Package continues to be the industry benchmark for recognition of competency and demonstration of consistent performance. For example, the package has been used widely within the Hydrocarbons Assessor Network as a mapping tool to recognise industry skills, often leading to complete qualification outcomes.

MSA will be focusing on developing resources in 2010 to cover the manufacture, installation, service, repair and modification of petrol, diesel and gas dispensers, and their associated storage systems at service stations, depots and similar installations.

## **Plastics, rubber and cabling**

The PMB07 qualifications support training of existing workers and new entrants, both in the workplace and through institution based delivery. This industry has many strengths when it comes to sustainability which will be a focus for further training package improvements. These include the emergence of fibre composites and use of non petroleum-based polymers which have lower carbon footprint than many other materials.

Additionally, research into returning plastics and rubber back into petroleum has been a focal point that could lead to new units of competency requirements.

## **Manufactured mineral products**

The Manufactured Mineral Products Training Package supports training in a diverse range of industries. Whilst it is true to say that the uptake into this area is still dominated by the larger players such as Boral, some small and medium enterprises (SME's) such as Wagner's cement manufacturers are starting to identify the benefits of using the training package to up skill workers and bench-marking across

MSA has just completed a review of this training package which has now been submitted to the National Quality Council (NQC).

The new Manufactured Mineral Products Training Package PMC10 will now incorporate updates to technology skills such as process control and a new Vocational Graduate Certificate in Refractories Engineering.

The review also examined coverage of sustainability skills that support this energy intensive industry, and found that the existing units were sufficiently forward looking to cover the expected skills needs for these sectors.

While the industry acknowledges that there is a skills need for higher level skills, only the refractories sector saw it as a current priority. This led to the development of a Vocational Graduate Certificate in Refractories Engineering which is also included within the PMC10 submission. The need for higher level skill coverage for the cement and concrete sub-sectors will be revisited in twelve months.

The adoption of the Certificates in process manufacturing within the MSA07 manufacturing Training Package was supported to replace the existing PMC Certificates in Production Support.

## **Recreational Vehicles**

## ***MSA Environmental Scan 2010 DRAFT 15th Feb 2010***

MSA took over responsibility for the recreational vehicles units and qualifications in 2009 and has conducted extensive industry consultation to assess the impact of these resources on industry. The current structure of qualifications is highly inflexible and allows only limited variation in delivery options. In addition, this industry shares skill needs with the automotive and metal and engineering industries and needs to be able to access this wider pool of skills.

MSA is currently looking at Training Package overlaps and has industry support to generate more flexible packaging options for its qualifications. Skill needs to accommodate increasing electronic componentry are also being reviewed. This project will be conducted during 2010.

### ***Textiles, Clothing and Footwear***

The LMT07 Textiles, Clothing and Footwear Training Package appears to be working well in industry with plenty of options and pathways to meet industry needs and there is increasing support in school-based implementation.

The workforce in the TCF industry is dominated by long term (and aging) employees which are already very skilled in their work. As such many are reluctant to engage further training. A high component of outworkers (home-based production shops primarily non-English speaking backgrounds) also limits drivers for training. The industry itself does not have a strong culture of training and as such, extra effort and incentives may be required to engage both employers and employees in ensuring that enterprises are able to transition to meet new market conditions.

MSA has received feedback that there are structural barriers in the laundry and dry cleaning qualifications which it is currently addressing. In addition MSA is conducting further updates in the pattern making and sizing areas of the LMT07 Training Package.

### ***Learner profile***

Manufacturing and automotive Industries have a significant proportion of its skills approaching retirement. This is across the board and includes expertise within enterprises, RTOs and industry associations.

This issue and the inevitable drain of skills that will occur emerged more strongly in research for this year's Environmental Scan. Strategies for keeping these valued employees offer only short term solution to this issue which MSA expects will be increasingly raised in the upcoming years.

At the other end, attracting young people into the industry is also an ongoing challenge. Enterprises express frustration about the quality of skills (and attitude) in today's young tradespeople.

MSA is also aware that low levels of language, literacy and numeracy are presenting a barrier to skill growth that requires further attention. This is a priority area for Ai Group activities in 2010.

## ***MSA Environmental Scan 2010 DRAFT 15th Feb 2010***

In their recent CEO survey, Ai Group found that a quarter of employers (25.1%) indicated a shortage of literacy skills, 22.5% reported shortage of numeracy skills and 34.7% reported a shortage of IT skills.

**ENROLMENT SUMMARY DATA**

Enrolment data from NCVET National Apprentice and trainee collection 2008 (unpublished) and NCVET National VET provider collection 2008 (unpublished)

<b>Enrolments in manufacturing Training Packages 2005</b>		
Training Package	New Apprenticeship	All students
AUM	452	2,438
AUR	13,734	40,936
LMF	2,950	7,114
LMT	1,353	7,843
MCM	471	333
MEA	404	1,540
MEM	12,244	46,798
MSA	3	0
PMA	325	1,439
PMB	6,702	3,159
PMC	327	169
PML	204	4,104
<b>Total</b>	<b>39,169</b>	<b>115,873</b>

<b>Enrolments in manufacturing Training Packages 2006</b>		
Training Package	New Apprenticeship	All students
AUM	606	1,543
AUR	13,690	48,510
LMF	3,090	9,253
LMT	1,184	7,314
MCM	3,163	1,329
MEA	347	1,599
MEM	12,203	56,638
MSA	0	18
PMA	205	1,763
PMB	4,409	2,786
PMC	614	394
PML	428	4,215
<b>Total</b>	<b>39,939</b>	<b>135,362</b>

<b>Enrolments in manufacturing Training Packages 2007</b>		
Training Package	New Apprenticeship	All students
AUM	547	709
AUR	14,188	46,248
LMF	3,343	10,193
LMT	782	7,403
MCM	3,944	2,949
MEA	500	1,757
MEM	12,511	60,118
MSA	76	159
PMA	358	1,722
PMB	4,318	2,902
PMC	316	316
PML	470	4,192
<b>Total</b>	<b>41,353</b>	<b>138,668</b>

<b>Enrolments in manufacturing Training Packages 2008</b>		
Training Package	New Apprenticeship	All students
AUM	304	595
AUR	13,824	45,220
LMF	3,062	10,595
LMT	801	6,635
MCM	3,847	3,484
MEA	653	1,624
MEM	12,360	60,477
MSA	619	218
PMA	426	2,440
PMB	2,654	2,872
PMC	278	285
PML	725	4,678
<b>Total</b>	<b>39,553</b>	<b>139,123</b>

## MSA Environmental Scan 2010 DRAFT 15th Feb 2010

Completion data from NCVET National Apprenticeship and trainee collection 2008 (unpublished) and NCVET National VET provider collection 2008 (unpublished)

### Completions in manufacturing Training Packages 2005

Training Package	New Apprenticeship	All students
AUM	647	345
AUR	6,165	7,642
LMF	254	761
LMT	801	1,999
MCM	0	51
MEA	280	198
MEM	4,868	5,929
PMA	172	586
PMB	3,005	1,372
PMC	193	60
PML	83	1,072
<b>Total</b>	<b>16,468</b>	<b>20,015</b>

### Completions in manufacturing Training Packages 2006

Training Package	New Apprenticeship	All students
AUM	527	201
AUR	6,604	11,733
LMF	520	1,042
LMT	768	1,855
MCM	152	216
MEA	361	249
MEM	6,035	6,770
MSA	0	40
PMA	165	593
PMB	4,564	517
PMC	259	99
PML	116	946
<b>Total</b>	<b>20,071</b>	<b>24,261</b>

### Completions in manufacturing Training Packages 2007

Training Package	New Apprenticeship	All students
AUM	1,008	176
AUR	6,746	9,756
LMF	1,069	1,561
LMT	1,025	1,954
MCM	861	880
MEA	398	389
MEM	6,446	7,690
MSA	0	47
PMA	229	660
PMB	3,596	803
PMC	329	75
PML	146	1,075
<b>Total</b>	<b>21,853</b>	<b>25,066</b>

### Completions in manufacturing Training Packages 2008

Training Package	New Apprenticeship	All students
AUM	339	75
AUR	7,488	9,127
LMF	1,481	1,636
LMT	716	1,559
MCM	2,403	654
MEA	331	307
MEM	7,472	8,545
MSA	1	34
PMA	206	861
PMB	2,528	742
PMC	309	21
PML	316	1,044
<b>Total</b>	<b>23,590</b>	<b>24,608</b>

## **FUTURE DIRECTIONS FOR ENDORSED COMPONENTS OF TRAINING PACKAGES**

Training Packages are continuously evolving; partly as the VET sector seeks to improve its effectiveness, and partly in response to the changing needs of industry. Over the next few years Training Packages will undergo changes that will further test the sector's capacity and ability to respond. There is increasing discussion about the nature of Training Package components themselves and how they can be designed to improve training outcomes from an industry perspective and increase accessibility for users. MSA has been involved with all the Industry Skills Councils throughout the year to examine this issue and is developing proposals for a reinvigorated approach to training package structures. This is being done in keeping with the findings and recommendations contained in the VET Products for the 21<sup>st</sup> Century report<sup>11</sup>

The key question that arises from this work is, *is the VET system agile and responsive enough to implement future directions for Training Packages?*

A further challenge for the system is in the use of Training Packages as a key tool in workforce development.

It is already evident that the VET system itself is facing many challenges with a shortage of trainers, demand for greater involvement in broader enterprise issues and keeping up with additional change drivers such as sustainability and new technologies. Focusing on the implementation of VET initiatives in industry is critical to the long term effectiveness of VET as a whole.

### ***Demand driven***

In order to be effectively 'demand driven' and 'industry lead', VET efforts must be based on current intelligence that stems from enterprises, an appreciation for broader workforce development issues and an ability to tailor an effective and rapid response. This means that Training Packages and delivery mechanisms must be flexible and relevant in order to accommodate a variety of needs. Funding models must also support multiple approaches to skills development and encourage this diversity. Public funds must be applied effectively to ensure they generate increased employer and industry investment in skills and qualifications. This would encourage VET to move away from standardised training offerings motivated by ease of delivery and access to funding, and further towards strategic responses to real employment needs.

Identifying what skilling supports to offer enterprises must be the starting point and the conducting of skills analysis processes is instrumental in determining effective strategies. This places intense pressure on the enterprise / VET interchange and point of contact and undoubtedly

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<sup>11</sup> NQC Secretariat, TVET Australia 2009

## **MSA Environmental Scan 2010 DRAFT 15th Feb 2010**

there is more work to be done to get this right. This relationship must drive the VET response in developing Australia's workforce and has implications for the flow of information from enterprises to policy makers. The Environmental Scans are an example of this process at work.

MSA acknowledges that there are many initiatives in VET today that endorse this position and are helping to improve the effectiveness and relevancy of the VET system. It is however essential that this drive VET activity and improvement plans.

### ***Holistic approach to workforce development***

Effective support systems provide a comprehensive 'wrap around' service. For industry this means a focus on business capacity, innovation and skills, set within an industry- wide development strategy. It is important that these elements are approached in an integrated manner and in order to achieve this, VET practitioners will need to increase its capacity for working with clients and other industry support services.

The need for collaboration was also confirmed in research conducted by Enterprise Registered Training Organisation Association (ERTO A).

*“Partnership arrangements with other RTOs would be much more attractive to enterprises if the RTO is able to talk business performance improvement and workforce capability development, for which training may be one solution.”<sup>12</sup>*

On the skills side, individuals and industries must be encouraged to adapt a commitment to lifelong learning with an understanding that improving skills benefits all aspects of Australian economy and lifestyle. Whilst enterprises are sometimes resistant to train for fear of not getting return on their investment, it is important to recognise that improving the skills base in Australia will improve business conditions for the long term. We must continue to remove barriers to accessing and implementing development opportunities.

One such barrier which needs attention is that between VET and higher education. It is widely acknowledged that Australia needs higher level skills and that there are multiple skill challenges. Recognition of learning and skills acquired by these sectors needs a common language to enable greater flow between the two. At this stage it appears equally difficult for students to gain recognition from VET to university as it is from university to VET. This does not appear to be in line with a broad philosophy of educating Australians and building our workforce capacity. The outcomes of the current work by the Australian Qualifications Framework Council (AQFC) to address this issue is keenly awaited by MSA.

A holistic approach also incorporates an analysis of how effectively skills are being used within enterprises. Enterprises need additional support in the management of their skills to ensure they

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<sup>12</sup> ERTOA Discussion Paper – The role of enterprise RTOs' in skilling the Australian workforce. INVESTING WISELY A statement on meeting Australia's skill needs by the National Skills Policy Collaboration

## **MSA Environmental Scan 2010 DRAFT 15th Feb 2010**

are getting the most from them. We already know that enterprises are struggling with management and underutilisation of skills is a key productivity issue that needs further attention.

Ai Group is currently exploring strategies to address underutilization across industry. Its project paper notes that:

*The contracting Australian economy has resulted in increased unemployment levels and reduced expenditure on training and this is occurring against a backdrop of decreasing productivity levels. At a time when skills need to be used to the fullest extent possible we are concerned that there exists considerable areas of skills underutilisation<sup>13</sup>.*

As well as skill underutilisation, there appears to be a reducing focus of structured skill development through on the job training in many enterprises. Research conducted by the National Skills Policy Collaboration<sup>14</sup> suggests that there seems to be a shifting of training responsibility from employers to individuals. While increased pressure on staffing may be part of the reason for this, it flags deep and increasing concerns about the capacity of enterprises to participate effectively in workforce development.

MSA has a range of initiatives to support enterprises in a variety of ways to maximise outcomes from their skills and will continue to broaden its workforce development supports. These include website resources to support skills recognition, job planning and matching, information sheets, professional development workshops and an increasing focus on one-on-one industry visits.

### **Sustainability**

Sustainability is one of the top issues across manufacturing and will increase in focus in 2010. Consequentially is a priority for Training Packages and VET programs. While the implications of sustainability drivers are still uncertain, it is vital that VET prepares for this inevitable industry need.

MSA considers that its role in establishing sustainability skills and providing leadership in this area is critical. MSA's stakeholders will be dependent on highly technical skills and processes which enable them to measure, monitor, document and improve environmental outcomes of their operations. MSA's scope of coverage includes an extensive range of work which has direct and significant environmental implications.

In its CEO Survey, Ai Group identified that 24.9% of labourers and process workers, i.e. those most involved with operations, are the largest group needing sustainability skills improvement. This was followed by managers (23.7%) and technicians and trades workers (17.9%).

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<sup>13</sup> Skills Utilisation Project Proposal. August 2009. Ai Group

<sup>14</sup> INVESTING WISELY A statement on meeting Australia's skill needs by the National Skills Policy Collaboration – AIG / AMWU / ACTU / AEU / Dusseldorp Skills Forum / Group Training Australia April 2009

## **MSA Environmental Scan 2010 DRAFT 15th Feb 2010**

The key technical areas where the workforce's sustainability skills are perceived as in need of improvement are waste management (cited by 26.9% of firms); energy and/or water usage (20.9%); working better with current technologies (14.4%); improvement of business practices (13.4%); and new environmental technologies (10.1%).<sup>15</sup>

All MSA qualifications will include sustainability skills by the end of 2010. A review to identify sustainability skills gaps will be completed by the end of March 2010 to identify further work priorities.

MSA is currently developing a "cross industry" qualification framework and new national qualifications to cover technicians/paraprofessionals working in fields such as: environmental monitoring and management, pollution control, waste and energy management. This is also relevant to the training needs of personnel working in the rapidly developing sustainable development sector.

MSA is also finalising a new Diploma of Sustainability which will target the technical aspects of improving sustainability outcomes for enterprises. Further work is planned for 2010 to strengthen sustainability within the competitive manufacturing units and qualifications. Competitive and lean manufacturing tools and practices are considered to be a cornerstone strategy for enterprises to improve their carbon footprint.

### ***Skills for the future***

Up-skilling the workforce to meet increased demand for high technology skills is another key industry need and MSA is responding. It has commenced a revision of mechanical, mechatronic, maintenance and manufacturing Diploma and Advanced Diploma units, preparation of new units in HVAC/R, robotics, rapid prototyping/ rapid manufacturing, tooling evaluation and design and preparation of an engineering vocational graduate qualification and associated units. The current focus is on mapping work requirements and assessing the impact of the new modernised Manufacturing Award on technician and para-professional work.

The automotive sector has identified wide areas where technological changes have occurred and where the various units of competency and qualifications need to be brought up to date. This is not just in technical content but also in the range of necessary skills to deal with the technology, from manufacturing, service and repair, through to diagnostic skills. The emergence of hybrid drives, alternative fuels and electrical energy sources in vehicles will bring about a shift in the traditional skills base of vehicle service and repair people.

High level skills, technical skills, sustainability, innovation, management and leadership are all central skills Australian manufacturing and automotive needs to meet its future workforce needs. We are on the brink of new ways of doing things; new products, process, opportunities and even new core values. Having the right skills, in the right place at the right time is still an under-riding

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<sup>15</sup> Aigroup National CEO Survey – Skilling Business in Tough Times October 2009

## ***MSA Environmental Scan 2010 DRAFT 15th Feb 2010***

philosophy of MSA's workforce and one that will continue to guide continuous improvement processes in 2010.

### ***Final words***

The manufacturing and automotive industries have had to draw on a range of resources to get through the year. In many cases, the conditions have illustrated where these resources could be strengthened to improve outcomes across the sectors. Hard times will continue in a range of forms and resilience and resourcefulness will ultimately be the effective response.

This year is one of regrouping, rebuilding and new growth. There have been serious lessons provided over the past 12 months, now is time to integrate new learning and strive for industry outcomes that are sustainable, financially, socially and environmentally.