



Scoping Lean Skills

Bunyip & Associates Pty Ltd

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For further information about this report or any other work being undertaken by Innovation & Business Skills Australia Ltd, please visit www.ibsa.org.au.

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Executive Summary

All businesses are looking to improve operational efficiencies, increase customer satisfaction and use contemporary workforce practices to engage and retain skills. Lean skills offers business a way of operating, of approaching work and the workplace to standardise and empower. While lean skills and lean thinking could well benefit virtually every workplace, to be successfully implemented is a long journey requiring management commitment to embrace cultural change.

This scoping study, following extensive research and consultation, demonstrates both interest and opportunity. The recommendations offer two alternative approaches, with recommendation one requiring significant cooperation and collaboration with Manufacturing Skills Australia (MSA) in their review of the Competitive Manufacturing qualifications. This is a timely opportunity given the planned review and well supported by those who have provided feedback on the recommendations. Recommendation two involves IBSA developing single units at each qualification level, from Certificate II and above for its training packages. This is only suggested if recommendation one is not undertaken or does not achieve its intended purpose for Innovation & Business Skills Australia.

To be successfully implemented both recommendations require significant support materials to ensure VET practitioners are well equipped to deliver the qualifications and units to a high standard.

The next step would involve discussions with MSA who have already indicated their interest in working with IBSA to develop a Term Sheet including governance arrangements.

Background

Innovation & Business Skills Australia (IBSA) contracted Bunyip & Associates to undertake a Scoping of Lean Skills across all of the IBSA Training Packages.

The work commenced in October 2009 and concluded in January 2010.

Lean manufacturing is well established in the manufacturing sector throughout the world with varying degrees of success in implementation. It is a common element of both vocational and tertiary education programs and there are many institutes, centres and businesses that combine teaching of lean thinking with consulting through the implementation stage. Some lean advocates are purists, whilst others have adapted Lean Thinking to suit their needs.

This report developed through a consultative approach, examines the relevance of lean skills to the IBSA qualifications and draws recommendations from the findings.

Lean Thinking

Lean manufacturing is moving beyond the manufacturing sector and there is now evidence of the implementation of lean skills in other industry sectors including the services sector. This “lean thinking” is being adopted by the service industries which have a huge opportunity to reduce waste, examples might include:

- Using the value stream map with a service desk operation
- 5S tool to organise a warehousing function
- Using kaizen (incremental improvement) to reduce waiting times.

Lean Thinking is not just about eliminating waste, it is a way of approaching work, it isn't the work.

Methodology

The scoping of Lean Skills to the IBSA Training Packages involved 5 stages of work as outlined in Table 1 conducted over the October 2009 – January 2010 time period. Work was planned around the due date for the final report was set at 15 January 2010.

Stage	October 2009	November 2009	December 2009	January 2010
<p>Stage 1 – Project Initiation</p> <p>Debrief with staff from IBSA and other key stakeholders.</p> <p>Development of a detailed Project Plan to include:</p> <ul style="list-style-type: none"> • aims and objectives linking outcomes and deliverables; • a time line; • milestones; • establishing the range of stakeholders; • methodology; • data and information to be gathered, reviewed and where appropriate analysed; and • communications strategy. <p>Establish consultation register and issues register (to be updated through the project timeline).</p> <p>Establish informal and formal reporting requirements.</p>				
<p>Stage 2 – Research*</p> <p>Desk top research, primarily web based and via phone interviews to:</p> <ul style="list-style-type: none"> • investigate international trends in Lean skills, particularly for the IBSA industry sectors; • investigate how other Industry Skills Councils are involved in Lean skills, particularly Manufacturing Skills Australia ; • determine accredited courses available in Lean skills and the institutions delivering the courses; • determine appropriateness of Lean skills for micro and small businesses; and • develop a Discussion Paper to be used during national consultations with key stakeholders. 				

<p>Stage 3 – Consultation*</p> <p>Three main methods were used to gain feedback and included:</p> <ol style="list-style-type: none"> 1. Surveys – 7 responses received 2. Focus groups planned in three states, conducted in two states with 31 participants 3. Interviews by phone and in SA, Victoria, WA and NSW with 25 people 				
<p>Stage 4 – Forecast and validate*</p> <ul style="list-style-type: none"> • Consolidate research and focus group discussions and develop recommendations addressing the project aim. • Validate findings and recommendations with focus group members and stakeholders. • Further review and validate as required. 				
<p>Step 5 – Reporting</p> <p>Regular interim reporting will be included in the Project Plan.</p> <p>The final report will include:</p> <ul style="list-style-type: none"> • an executive summary clearly identifying the project outcomes and any recommendations for further work and an indicative cost for the proposed scope of work; • details of the methodology employed during the research, including data collection, feedback, consultation processes and validation activities; • detailed analysis of all IBSA qualifications to determine qualification packaging arrangements; • evidence of support for the research findings and recommendations from key stakeholders; • a consultation register of phone interviews and focus group participants; and • an issues register and actions to resolve them. 	x	x	x	

Table 1 – Project Stages

Note - *further details provided below

Stage 2 – Research

Communications Strategy

A Communications Strategy was developed supported by IBSA which included advice to state authorities through the IBSA newsletter.

Desk top research

Widespread web based research was undertaken centering around “lean thinking”, “lean office”, “lean in business”, “lean in health” and both vocational and tertiary education.

A discussion paper was prepared including a survey. This paper, once approved by IBSA, was distributed to all IBSA Advisory Committee members, Industry Training Advisory Boards and Industry Skills Boards and State Training Authorities. This totaled some 115 people (note some people are on more than one list), with seven survey responses received. The paper was also used as the basis of face to face and focus group discussions.

The discussion paper provided:

- an introduction to lean through a history, fundamental concepts and outline of lean office;
- international trends on lean thinking, lean office, holistic approach and linking lean and green;
- a search for units in IBSA training packages covering lean concepts; and
- Competitive Manufacturing Qualifications where lean is covered.

Stage 3 – Consultation

Consultation occurred in three main ways.

Correspondence

Email and phone correspondence occurred with some parties e.g. Lean Enterprise Research Centre (LERC) based at Cardiff University.

Focus Groups

Focus groups were planned for Victoria, South Australia and Western Australia using the assistance of State Authorities.

Given the time of year and recent demands on industry, focus groups were difficult to arrange leading to 6 being run in South Australia and one in Victoria. While these were generally well attended, it should be noted that most participants were from private and public Registered Training Organisations (RTOs) and not from industry. This lack of industry participation may be attributed to by a number of causes including:

- over committing and lack of availability of industry; and
- the level of interest in “lean skills”.

The Victorian focus group was convened and hosted by The Victorian Tafe Association and a widespread group of participants attended. Whilst the discussion followed the survey questions, it was not dedicated to any one of the IBSA training packages and so the discussion feedback has been included under the interview consultation feedback. Attendees list is provided in Appendix C and outcomes in Appendix F. Note, that the focus group outcomes may be influenced by jurisdictional biases.

Interviews

Interviews were conducted in person and over the phone with 25 people, largely from industry. These were conducted in four states, New South Wales, South Australia, Victoria and Western Australia. Interviewees often represented interest in multiple training packages making dialogue and feedback isolated to specific packages difficult to develop.

Consultation feedback is provided in Appendix D with brief comments summarising phone interviews and meetings.

Data collection

Data was collected in three main ways:

1. Survey results – survey results in raw form are available in Appendix E.
2. Focus group summaries – Summaries of each focus group are available in Appendix F.
3. Interviews – Consultation Feedback is available in Appendix D and H.

Stage 4 – Forecast and Validate

Focus group discussions were summarised by group and distributed to the participants of each focus group within a few days of attendance, for confirmation of discussion points and responses. Whilst this has value in itself little feedback was received.

Following each interview a brief summary, as outlined in Appendix G, was sent to the interviewee for confirmation of discussion points. Feedback was received from 7 interviewees.

Recommendations were distributed to those consulted (46) with response received from 12.

Scoping Findings

Research Findings

Investigate international trends in Lean skills, particularly for the IBSA industry sectors

Addressed in Discussion Paper in more detail.

Consideration: Is industry driving the adoption of Lean skills or education?

Identify the units available and most appropriate to Lean skills and Lean in the office

Addressed in Discussion Paper

Consideration: Almost all qualifications, particularly from Cert III and above include continuous improvement. Lean skills drive a culture of continuous improvement based on value to the customer, should Lean skills be embedded into continuous improvement units?

Investigate how other Industry Skills Councils are involved in Lean skills, particularly Manufacturing Skills Australia

Discussions were held with the following Industry Skills Councils regarding Lean skills; Government Skills Australia (GSA), ElectroComms and Energy Utilities Industry Skills Council Ltd (EE-Oz) and Manufacturing Skills Australia (MSA). Both GSA and EE-Oz at this stage have had no discussions about lean skills and currently have no plans to look at lean skills in relation to their training packages.

MSA has developed a set of Competitive Manufacturing Training Qualifications offered in the Manufacturing Training Package. The qualifications address many of the lean tools and introduce lean thinking and philosophies. Though developed for the manufacturing industry, these qualifications and in a number of cases units alone, are delivered to both manufacturing and non manufacturing organisations. Two hundred and seventy eight (278) private and public RTOs including a number of secondary schools and colleges have the MSA Competitive Manufacturing on their scope.

The qualifications, detailed in Appendix B include:

- MSA21108 Certificate II in Competitive Manufacturing
- MSA31108 Certificate III in Competitive Manufacturing
- MSA41108 Certificate IV in Competitive Manufacturing
- MSA51108 Diploma of Competitive Manufacturing
- MSA61108 Advanced Diploma of Competitive Manufacturing
- MSA71109 Graduate Certificate in Competitive Manufacturing
- MSA81109 Graduate Diploma of Competitive Manufacturing

Bob Paton, MSA Chief Executive Officer advised that a review of the Competitive Manufacturing qualifications will be undertaken during 2010. In response to enquiries and

feedback received, the review will include increasing the importance of the manufacturing value chain and activities to broaden the target audience beyond the manufacturing industry. MSA is keen to involve IBSA in this review to ensure relevance and application to a broad cross section of industries. Cross collaboration in this provides an excellent opportunity to influence and stream line training packages and qualifications.

Bob made it clear that the Competitive Manufacturing qualifications were developed as a post technical qualification to enhance skilled workers approach to work. In itself this qualification does not have a specific employment outcome.

Consideration: Qualifications often lead to employment outcomes. Could Lean skills lead to an employment outcome in its own right?

Determine accredited courses available in Lean skills and the institutions delivering the course

In addition to the Competitive Manufacturing qualifications addressed in the previous section a number of organisations offer non-accredited training as professional development. In addition some universities are also involved at both the vocational and tertiary levels and with professional development in Lean skills, see Appendix A.

Consideration: A number of consulting firms specialise in assisting organisations in becoming “lean” using combinations of training, work place mentoring, implementation frameworks etc. Organisations moving down the “lean” pathway seeking successful implementation are strongly committed to the cultural change and may not value qualifications per se.

Identify gaps for the development of additional units to support the required skills and knowledge

See consultation findings

Determine appropriateness of Lean skills for micro and small businesses

See consultation findings

Consideration: While Lean skills are appropriate for all businesses, the return on investment may not be justifiable for a small business. In addition, micro and small businesses are not well engaged with training, seeking to buy in skills as and when required.

Develop a Discussion Paper to be used during national consultations with key Stakeholders

This was undertaken, forwarded and approved by IBSA prior to consultations and provided previously.

Consultation Findings - General

Feedback was generally inconclusive across surveys, focus groups and interviews. A larger sample pool may have resulted in more consistent feedback but given the general lack of understanding of lean skills and their application and relevance to IBSA training packages this is unlikely.

While there is genuine interest both generated and reinforced by this scoping study in lean skills, the overall understanding of both RTOs and industry unless already working in this space is low, commitment is fragmented and largely based on organisational interest, and application varies. Lean skills and lean thinking are often delivered by consultants committed to the lean philosophy to organisations ready to embrace a new efficient and effective, holistic approach to enhancing their customer service through standardisation and eliminating costs. Lean skills are recognised as an approach to work rather than the work itself and its origins in the manufacturing industry can make it difficult for some to readily see relevance for businesses covered by IBSA training packages.

The exception is the Printing and Graphic Arts sector where significant work is being done to incorporate lean skills into the training package review and at an industry level through industry endorsed training in units from the Competitive Manufacturing Training qualifications.

In sectors where the customer is more difficult to clearly identify, e.g. Arts, the introduction of lean skills will require further consideration.

Determine whether current Lean units should be included as core units in all or selected IBSA qualifications.

Though not across the board, feedback suggested that lean units should not be included as core units in all or selected IBSA qualifications. Feedback strongly endorsed the relevance of lean skills but as an elective, particularly at Cert IV and Diploma levels.

A number of consultations strongly suggested the use of the Competitive Manufacturing qualifications following some review to broaden the applications to allow seamless importing and use as elective units in IBSA packages.

Consideration: Core units are usually considered mandatory. It is difficult to see how Lean skills could be considered mandatory in all IBSA qualifications.

The need and support for industry specific Lean skills as core competencies.

Because of the nature of lean skills being an approach to work not the work itself, industry specific lean skills as core competencies was not supported.

A qualifications framework for each qualification, contingent on the outcomes of the research and consultation

Not required based on feedback.

Gaps and industries support for the development of additional units in support of the required skills and knowledge.

Though not entirely consistent in all consultations, there was some interest in a single, generic unit covering lean, innovation, sustainability and green/environmental to be offered across all qualifications for all training packages.

Cert I and II – follow lean, sustainable etc

Cert III and IV – implement lean, sustainable etc

Diploma and higher qualifications – design, develop, plan lean, sustainable

Determining the appropriateness of Lean skills for micro and small businesses

All considered lean skills as being relevant and appropriate but that many small businesses were not ready to implement lean skills and lean thinking and that might place learners and employers in some conflict.

This feedback is also consistent with the IBSA report “Fresh Thinking about Management Skills for Small and Micro Businesses”.

Review the need for support materials

The need for support materials was strongly endorsed to ensure VET practitioners were well supported and can access professional development to upskill. Virtually all discussions reinforced the need to assist VET practitioners to ensure they have the right expertise to deliver and assess in new areas, such as lean skills. Suggestions offered including:

- Professional development – with particular emphasis on case studies demonstrating lean skills in different industries, contextualising advice
- Lean Skills Resource Kit – case studies, templates, mapping
- Assessment examples
- Teaching resources – activities, workbooks, work up examples.

Consideration: If Lean skills are embedded in core units in IBSA qualifications, sufficient time needs to lapse to ensure RTOs will be adequately resourced to deliver training in this area.

Identifying the need and support for skill sets for Lean skills.

There was no clear and consistent support for skill sets for lean skills. Some suggested it could be useful at higher qualifications e.g. Cert IV and above.

Consideration: Skills sets are defined as single units of competency, or combinations of units of competency, from an industry endorsed Training Package(s) which link to a licence or regulatory environment or defined industry need. As there is no license or regulatory framework around lean skills and no specific industry need has been identified it is not relevant.

Skills sets still remain inconsistent in their uptake and are well developed in some industries and packages than others. Skills sets are often alluded to as being more popular with employers than employees who are looking for transportable, nationally recognised qualifications.

Identifying the need and support for embedded Lean skills within existing qualifications and units of competency.

There was mixed response to this question with support for embedding Lean skills as long as it was incorporated into the language in the elements and the range statements.

Consideration: Cost of embedding lean skills into existing units of competency in IBSA packages and the professional development and support materials required to support VET practitioners.

Recommendations

The following recommendations are based on research, survey results, focus group discussions and interviews conducted as part of the Scoping Skills Project. They are presented in a particular sequence as they are interdependent.

Recommendation Option 1

1. That IBSA supports the Manufacturing Skills Australia review of the Competitive Manufacturing qualifications by influencing the scope of work to be undertaken as part of that review; seeks a role on the Steering Committee(s) for the review task and actively participates and supports the work of the review to ensure:
 - the qualifications could be undertaken as a post technical qualifications by industries covered by the IBSA Training Packages;
 - the qualification name better reflects a wider appeal e.g. Competitive Work Practices, Competitive Operations;
 - that graduates of these qualifications demonstrate their knowledge and competence of lean skills, tools and philosophies; and
 - that the units offered within the qualifications are suitable to be imported and used as electives in the IBSA Training Packages.
2. That IBSA undertakes a review to streamline all IBSA qualifications, commencing with Cert IVs to ensure units developed in one above can be imported or used as electives. It is suggested that priority be given to Business Services, Financial Services because of their role in the manufacturing value chain as well as their widespread application and Printing and Graphic Arts because it is currently under review.
3. That IBSA develops support materials for its Training Packages that include:
 - Professional Development workshops on lean skills;
 - A Resource Kit for VET practitioners including case studies providing examples of contextualising; templates; mapping; power point slides; and
 - Teaching resources – learner workbooks and activities, assessment examples. (This could be undertaken in conjunction with MSA based on their existing User Guide for competitive Manufacturing).

Benefits

This recommendation has the following benefits:

- demonstrates co-operation with another Industry Skills Council;
- assists in stream lining qualifications;
- provides a specialised qualification for those seeking to develop a comprehensive knowledge and skills in the subject; and
- allows units to be imported or taken as electives, commencing with Cert IVs for learners and industry seeking specific units of competency.

If Option 1 is not progressed, then option 2 is recommended.

Recommendation Option 2

1. That IBSA develops a generic unit suitable for IBSA training packages at each qualification level from Cert II and above, that addresses lean, innovation, sustainability and green guided by a Steering Committee/Working Group made up of industry representatives and active VET practitioners for each Training Package representing jurisdictions around Australia.
2. That IBSA undertakes a review to streamline all IBSA qualifications, commencing with Cert IVs and Diplomas, to ensure a generic unit that addresses lean, innovation, sustainability and green can be used as an elective.
3. That IBSA develops support materials for its Training Packages to support the delivery of these generic units that include:
 - Professional Development workshops on lean skills;
 - A Resource Kit for VET practitioners including case studies providing examples of contextualising; templates; mapping; power point slides; and
 - Teaching resources – learner workbooks and activities, assessment examples. (This could be undertaken in conjunction with MSA based on their existing User Guide for competitive Manufacturing).

Benefits

- Recognises that not all organisations seek lean skills.
- Supports a stepped introduction of lean skills aligned with nationally accredited units of competency.
- Links common threads between lean, innovation, sustainability and green.

These recommendations were distributed to those relevant from those consulted and surveyed for feedback. Of the 46 sent, responses were received from 12 people, representing just over 26% of the sample set and all responded positively. Responses are provided in Appendix G. It is reasonable to suggest that others have not responded due to the following reasons:

- timing of the holiday period and the due date for the final project report making distribution and return of feedback problematic and possibly preferential;
- the recommendations are consistent with the work undertaken and findings of the project; and
- the recommendations incorporate suggestions made during a number of the consultative activities.

Other Deliverables

Consultation Register of Phone Interviews and Meetings

See Appendix H.

Focus Group Attendees List

See Appendix C.

Appendix A Accredited Courses in Lean Skills and Institutions Delivering

1. MSA07 Manufacturing Training Package (as at November 2009)

The MSA07 Manufacturing Training Package has a range of units in Competitive Manufacturing that have been developed for lean skills. They are highlighted in the section below.

Summary of relevant AQF qualifications in this Training Package and RTOs

MSA21108 Certificate II in Competitive Manufacturing

Code	Title	Registered State	Delivery State
0022	ATEC - Adelaide Training and Employment Centre	SA	SA
21621	Australian Management Academy	VIC	NSW, VIC, QLD, SA, WA, TAS, NT, ACT
0260	Chisholm Institute	VIC	VIC
3044	Gordon Institute of TAFE	VIC	VIC
3094	Goulburn Ovens Institute of TAFE	VIC	VIC
40203	icareers	SA	NSW, VIC, QLD, SA, WA, TAS, NT, ACT
90654	OTR Training	NSW	NSW, VIC, QLD, SA, WA, TAS, NT, ACT
21450	Skillup Australia and Giant International College	VIC	NSW, VIC, QLD, SA, WA, TAS, NT, ACT
90002	TAFE NSW - Hunter Institute	NSW	NSW, VIC, QLD, SA, WA, TAS, NT, ACT
90001	TAFE NSW - New England Institute	NSW	NSW
90008	TAFE NSW - South Western Sydney Institute	NSW	NSW
90000	TAFE NSW - Western Sydney Institute	NSW	NSW
88118	VET Train Pty Ltd	ACT	NSW, VIC, QLD, ACT
3113	Victoria University	VIC	VIC

MSA31108 Certificate III in Competitive Manufacturing

Code	Title	Registered State	Delivery State
121936	1 Training Solutions	NARA	NSW, VIC, QLD, SA, WA, ACT
121164	ABEX Institute	NARA	NSW, VIC, QLD, SA, WA, TAS, NT, ACT
90294	Applied Training Solutions Pty Ltd	NSW	NSW, VIC, QLD, SA, WA, TAS, NT, ACT
20749	Ashley Institute of Training	VIC	NSW, VIC, QLD, SA, WA, TAS, ACT

0022	ATEC - Adelaide Training and Employment Centre	SA	SA
51269	Australian College of Training	WA	NSW, VIC, QLD, SA, WA, TAS
91282	Australian Institute of Workplace Learning	NSW	NSW, VIC, QLD, SA, WA, TAS, NT, ACT
21621	Australian Management Academy	VIC	NSW, VIC, QLD, SA, WA, TAS, NT, ACT
1816	Axiom College	QLD	NSW, VIC, QLD, SA, NT
90680	Bannister Technical	NSW	NSW, VIC, QLD, SA, WA, TAS
21805	Breakthrough Performance Consulting Pty Ltd	VIC	NSW, VIC, QLD
4074	BSIL Southern Edge	VIC	NSW, VIC, QLD, WA, ACT
0438	Central Queensland Institute of TAFE	QLD	NSW, QLD, NT
21707	Choice Training Solutions Pty Ltd	VIC	NSW, VIC, QLD, WA, TAS
21406	Corporate Excellence Group Pty Ltd	VIC	NSW, VIC, QLD, WA
91467	Corporate Partners Pty Ltd	NSW	NSW, VIC, QLD, SA
90892	Crown Equipment Pty Ltd	NSW	NSW, VIC, QLD, SA, WA, TAS, NT, ACT
91301	CTPM Australasia	NSW	NSW, VIC, SA, WA, TAS
0247	David J Foreman & Associates	SA	SA
50154	Directions	WA	WA
91365	Eagle Wing Education & Training Pty Ltd	NSW	NSW, VIC, QLD, SA, WA, TAS
60043	Esset Australia	TAS	TAS
7134	Franklyn Scholar	VIC	NSW, VIC, QLD, TAS
20802	Futurum Australia	VIC	NSW, VIC
3832	GM Holden Ltd	VIC	VIC, SA
3094	Goulburn Ovens Institute of TAFE	VIC	VIC
21371	Hume Learning Institute Pty Limited	VIC	VIC
40203	icareers	SA	NSW, VIC, QLD, SA, WA, TAS, NT, ACT
32186	IPS INSTITUTE	QLD	NSW, QLD, SA
0306	Kangan Batman Institute of TAFE	VIC	NSW, VIC, QLD, SA, WA, TAS, NT, ACT
90736	Kepner Tregoe Australasia Pty Ltd	NSW	NSW, VIC, QLD, SA, WA, TAS, NT, ACT
91040	Manufacturing Learning Australia	NSW	NSW, VIC, QLD, SA, WA, TAS, NT, ACT
90804	National Institute of Training	NSW	NSW, VIC, QLD, SA, WA, TAS
21988	National Learning Centre	VIC	VIC
3749	National Workplace Training	VIC	VIC
1933	Nationwide Training and Nationwide Transport Training	WA	NSW, VIC, QLD, SA, WA, TAS, NT, ACT
21663	Navitas Workforce Solutions	VIC	NSW, VIC, QLD
4638	Newskills Ltd	VIC	VIC
21343	Origin Training Solutions	VIC	VIC, TAS
30915	Orion Training and Performance Management Pty Ltd	QLD	NSW, VIC, QLD, SA, WA, NT
90654	OTR Training	NSW	NSW, VIC, QLD, SA, WA, TAS, NT, ACT
91142	Performance Frameworks	NSW	NSW
90272	Pivotal Training & Development Pty Ltd	NSW	NSW, VIC, QLD, ACT

21432	Rochdale Institute	VIC	NSW, VIC, QLD, WA, TAS
91353	Segla	NSW	NSW, WA
21450	Skillup Australia and Giant International College	VIC	NSW, VIC, QLD, SA, WA, TAS, NT, ACT
0418	Sunshine Coast Institute of TAFE	QLD	NSW, VIC, QLD, SA
6187	Sustainable Learning Australasia Pty Ltd	VIC	NSW, VIC
3059	Swinburne University of Technology	VIC	VIC
90002	TAFE NSW - Hunter Institute	NSW	NSW, VIC, QLD, SA, WA, TAS, NT, ACT
90001	TAFE NSW - New England Institute	NSW	NSW
90010	TAFE NSW - North Coast Institute	NSW	NSW
90005	TAFE NSW - Riverina Institute	NSW	NSW
90008	TAFE NSW - South Western Sydney Institute	NSW	NSW
90003	TAFE NSW - Sydney Institute	NSW	NSW
90009	TAFE NSW - Western Institute	NSW	NSW
90000	TAFE NSW - Western Sydney Institute	NSW	NSW
60142	Tasmanian Skills Institute	TAS	TAS
0156	TexSkill Limited	VIC	NSW, VIC, QLD
4132	TFIA Business Services Pty Ltd	VIC	NSW, VIC, QLD, SA, WA, TAS, NT, ACT
0713	The Bremer Institute of TAFE	QLD	QLD, NT
121748	The College of Manufacturing Excellence	NARA	NSW, VIC, QLD, SA, WA
31506	The Improve Group	QLD	NSW, VIC, QLD, SA, WA
31918	The Learning Collaborative Pty Ltd	QLD	NSW, VIC, QLD, SA, WA, TAS, NT, ACT
3927	The Management Edge Pty Ltd	VIC	NSW, VIC, QLD, SA, WA
91007	Train Australia Pty Ltd	NSW	NSW, VIC, QLD
121814	Training Experts Australia Pty. Ltd.	NARA	NSW, VIC
4909	University of Ballarat	VIC	NSW, VIC, QLD, SA, TAS, NT, ACT
88118	VET Train Pty Ltd	ACT	NSW, VIC, QLD, ACT
3113	Victoria University	VIC	VIC
90380	Vocational Institute of Australia Pty Ltd	NSW	NSW, VIC, QLD, SA, WA, TAS, NT, ACT
22128	Vostro Institute of Training Australia Pty Ltd	VIC	VIC
21590	Wiseman Institute of Applied Learning	VIC	NSW, VIC, QLD, SA, WA
3097	Wodonga Institute of TAFE	VIC	VIC
4199	Workplace Learning Initiatives Pty Ltd	VIC	VIC

MSA41108 Certificate IV in Competitive Manufacturing

Code	Title	Registered State	Delivery State
121936	1 Training Solutions	NARA	NSW, VIC, QLD, SA, WA, ACT
121164	ABEX Institute	NARA	NSW, VIC, QLD, SA, WA, TAS, NT, ACT
90294	Applied Training Solutions Pty Ltd	NSW	NSW, VIC, QLD, SA,

			WA, TAS, NT, ACT
20749	Ashley Institute of Training	VIC	NSW, VIC, QLD, SA, WA, TAS
0022	ATEC - Adelaide Training and Employment Centre	SA	SA
51269	Australian College of Training	WA	NSW, VIC, QLD, SA, WA, TAS
91282	Australian Institute of Workplace Learning	NSW	NSW, VIC, QLD, SA, WA, TAS, NT, ACT
21621	Australian Management Academy	VIC	NSW, VIC, QLD, SA, WA, TAS, NT, ACT
1816	Axiom College	QLD	NSW, VIC, QLD, SA, NT
90680	Bannister Technical	NSW	NSW, VIC, QLD, SA, WA, TAS
21805	Breakthrough Performance Consulting Pty Ltd	VIC	NSW, VIC, QLD
4074	BSIL Southern Edge	VIC	NSW, VIC, QLD, WA
31470	Careers Australia Institute of Training Pty Ltd, Careers Australia Institute of Business, Careers Australia Institute of Hospitality	QLD	NSW, VIC, QLD, SA, WA, NT
0438	Central Queensland Institute of TAFE	QLD	NSW, QLD, NT
0260	Chisholm Institute	VIC	VIC
21707	Choice Training Solutions Pty Ltd	VIC	NSW, VIC, QLD, WA, TAS
21884	Complete Lean Solutions Pty Ltd	VIC	NSW, VIC, SA, TAS
21406	Corporate Excellence Group Pty Ltd	VIC	NSW, VIC, QLD, WA
91467	Corporate Partners Pty Ltd	NSW	NSW, VIC, QLD, SA
90892	Crown Equipment Pty Ltd	NSW	NSW, VIC, QLD, SA, WA, TAS, NT, ACT
91301	CTPM Australasia	NSW	NSW, VIC, SA, WA, TAS
0247	David J Foreman & Associates	SA	SA
50154	Directions	WA	WA
31408	E I M Training	QLD	NSW, VIC, QLD, SA, WA, TAS
91365	Eagle Wing Education & Training Pty Ltd	NSW	NSW, VIC, QLD, SA, WA, TAS
60043	Esset Australia	TAS	TAS
7134	Franklyn Scholar	VIC	NSW, VIC, QLD
20802	Futurum Australia	VIC	NSW, VIC, QLD, WA
3832	GM Holden Ltd	VIC	VIC, SA
3044	Gordon Institute of TAFE	VIC	VIC
3094	Goulburn Ovens Institute of TAFE	VIC	VIC
21371	Hume Learning Institute Pty Limited	VIC	VIC
40203	icareers	SA	NSW, VIC, QLD, SA, WA, TAS, NT, ACT
32186	IPS INSTITUTE	QLD	NSW, QLD, SA
20656	ITS Training Pty Ltd	VIC	NSW, VIC, QLD, SA, TAS, NT, ACT
0306	Kangan Batman Institute of TAFE	VIC	NSW, VIC, QLD, SA, WA, TAS, NT, ACT
90736	Kepner Tregoe Australasia Pty Ltd	NSW	NSW, VIC, QLD, SA, WA, TAS, NT, ACT

91040	Manufacturing Learning Australia	NSW	NSW, VIC, QLD, SA, WA, TAS, NT, ACT
21619	Melbourne Training Options	VIC	VIC
91454	MP Personnel & Training	NSW	NSW, VIC
90804	National Institute of Training	NSW	NSW, VIC, QLD, SA, WA, TAS
3749	National Workplace Training	VIC	VIC
1933	Nationwide Training and Nationwide Transport Training	WA	NSW, VIC, QLD, SA, WA, TAS, NT, ACT
21663	Navitas Workforce Solutions	VIC	NSW, VIC, QLD
4638	Newskills Ltd	VIC	VIC
21343	Origin Training Solutions	VIC	VIC, TAS
30915	Orion Training and Performance Management Pty Ltd	QLD	NSW, VIC, QLD, SA, WA, NT
90654	OTR Training	NSW	NSW, VIC, QLD, SA, WA, TAS, NT, ACT
91142	Performance Frameworks	NSW	NSW
90272	Pivotal Training & Development Pty Ltd	NSW	NSW, VIC, QLD, ACT
21819	Pow Wow Training Pty Ltd	VIC	NSW, VIC, QLD
21432	Rochdale Institute	VIC	NSW, VIC, QLD, WA, TAS
91353	Segla	NSW	NSW, VIC, QLD, SA, WA
31396	SkillsTech Australia	QLD	NSW, VIC, QLD, SA, WA
21450	Skillup Australia and Giant International College	VIC	NSW, VIC, QLD, SA, WA, TAS, NT, ACT
0418	Sunshine Coast Institute of TAFE	QLD	NSW, VIC, QLD, SA
3059	Swinburne University of Technology	VIC	NSW, VIC
90002	TAFE NSW - Hunter Institute	NSW	NSW, VIC, QLD, SA, WA, TAS, NT, ACT
90001	TAFE NSW - New England Institute	NSW	NSW
90010	TAFE NSW - North Coast Institute	NSW	NSW
Code	Title	Registered State	Delivery State
90005	TAFE NSW - Riverina Institute	NSW	NSW
90008	TAFE NSW - South Western Sydney Institute	NSW	NSW
90003	TAFE NSW - Sydney Institute	NSW	NSW
90009	TAFE NSW - Western Institute	NSW	NSW
90000	TAFE NSW - Western Sydney Institute	NSW	NSW
60142	Tasmanian Skills Institute	TAS	TAS
0156	TexSkill Limited	VIC	NSW, VIC, QLD, SA, TAS
4132	TFIA Business Services Pty Ltd	VIC	NSW, VIC, QLD, SA, WA, TAS, NT, ACT
0713	The Bremer Institute of TAFE	QLD	QLD, NT
121748	The College of Manufacturing Excellence	NARA	NSW, VIC, QLD, SA, WA
31506	The Improve Group	QLD	NSW, VIC, QLD, SA, WA
3927	The Management Edge Pty Ltd	VIC	NSW, VIC, QLD, SA,

			WA, TAS, NT	
91007	Train Australia Pty Ltd	NSW	NSW, VIC, QLD	
40058	Training, Innovation, Management and Enterprises	SA	NSW, VIC, QLD, SA, WA, TAS, NT, ACT	
4909	University of Ballarat	VIC	NSW, VIC, QLD, SA, WA, TAS, NT, ACT	
88118	VET Train Pty Ltd	ACT	NSW, VIC, QLD, ACT	
3113	Victoria University	VIC	VIC	
90380	Vocational Institute of Australia Pty Ltd	NSW	NSW, VIC, QLD, SA, WA, TAS, NT, ACT	
22128	Vostro Institute of Training Australia Pty Ltd	VIC	VIC	
21590	Wiseman Institute of Applied Learning	VIC	NSW, VIC, QLD, SA, WA	
3097	Wodonga Institute of TAFE		VIC	VIC
4199	Workplace Learning Initiatives Pty Ltd		VIC	VIC

MSA51108 Diploma of Competitive Manufacturing

Code	Title	Registered State	Delivery State
51269	Australian College of Training	WA	NSW, VIC, QLD, SA, WA, TAS
0438	Central Queensland Institute of TAFE	QLD	NSW, QLD, NT
21406	Corporate Excellence Group Pty Ltd	VIC	NSW, VIC
3832	GM Holden Ltd	VIC	VIC, SA
3094	Goulburn Ovens Institute of TAFE	VIC	VIC
0306	Kangan Batman Institute of TAFE	VIC	NSW, VIC, QLD, SA, WA, TAS, NT, ACT
91353	Segla	NSW	NSW
3059	Swinburne University of Technology	VIC	NSW, VIC, QLD
90002	TAFE NSW - Hunter Institute	NSW	NSW
90008	TAFE NSW - South Western Sydney Institute	NSW	NSW
90003	TAFE NSW - Sydney Institute	NSW	NSW
90000	TAFE NSW - Western Sydney Institute	NSW	NSW
0156	TexSkill Limited	VIC	NSW, VIC
121748	The College of Manufacturing Excellence	NARA	VIC
31506	The Improve Group	QLD	NSW, VIC, QLD, SA, WA
4909	University of Ballarat	VIC	NSW, VIC, QLD, SA, WA, TAS, NT, ACT
3113	Victoria University	VIC	VIC

MSA61108 Advanced Diploma of Competitive Manufacturing

Code	Title	Registered State	Delivery State
90008	TAFE NSW - South Western Sydney Institute	NSW	NSW
90003	TAFE NSW - Sydney Institute	NSW	NSW

90000	TAFE NSW - Western Sydney Institute	NSW	NSW
121748	The College of Manufacturing Excellence	NARA	VIC
4909	University of Ballarat	VIC	NSW, VIC, QLD, SA, WA, TAS, NT, ACT

MSA71109 Vocational Graduate Certificate of Competitive Manufacturing¹

MSA81109 Vocational Graduate Diploma of Competitive Manufacturing

2. Lean Skills – Accredited Courses and Institutions

The following are a small sample of organisations that can provide training, coaching or consulting in Competitive Manufacturing and Lean Philosophies listed in alphabetical order.

Note: In some cases they are offered as part of or an entire Competitive Manufacturing Qualification and often associated with a consulting service.

ACIG (Australian Continuous Improvement Group)

ACIG (Australian Continuous Improvement Group) has been providing organisations with Continuous Improvement / Lean consulting and training for more than 15 years. Their experience extends across a diverse range of sectors such as Manufacturing, Health, Financial Services, State and Local Governments.

Training services include:

- Introduction to Lean
- Lean Simulation Game
- Lean Leadership
- Lean Facilitator Development
- Value Stream Mapping
- Lean tools: 5S, One Piece, Pull Systems, Quick Changeovers
- Six Sigma and TOC.
- Problem Solving Tools
- Plant and Office Layout
- 1 Page Reporting
- Lean Accounting

Further Information

Tel: (03) 9650 7222

Fax: (03) 9650 7088

<http://acig.com.au/index.html>

¹ MSA71109 and MSA81109 were only endorsed during 2009 and as at 27 October there were no RTOs with these qualifications on their scope.

Advanced Technologies Training Capability Alliance (ATTCA)

The Victorian Advanced Technologies Training Capability Alliance (ATTCA) is an initiative of seven Victorian TAFE Institutes with a deep commitment to training for our manufacturing industries. ATTCA was established in 2003 under the Swinburne University TAFE School of Engineering “Centre for New Manufacturing (CNM)”. The CNM was itself established following the Victorian Government focus on “Knowledge and Skills for the Innovation Economy 2002”. ATTCA has demonstrated the benefits of TAFE providers working together in the provision of relevant and responsive training to our industry.

Further Information

http://www.nmtn.biz/index.php?option=com_content&task=view&id=4&Itemid=8

Corporate Partners: sustainable results through people and process

Corporate Partners (CP) is a group of business change consultants. The team has had extensive senior experience in manufacturing businesses (including operations, general management, divisional management and ownership). CP seek to assist a business apply best practice in their operations, and Lean is one of a number of approaches to apply best practice, these principles are taught and applied in our client’s businesses.

CP has observed that many organisations follow fads in modern management and often fail to understand the real needs of their business. Lean comprises many tools - many of which can be easy to apply, but applied out of context, make little difference to the bottom line. Corporate Partners focus is on process rather than just tools.

In consultation with senior management CP seek to understand what the key business objectives are (as perceived by key stakeholders), and then assist those in the business to deploy those objectives through the whole organisation. This process is often called Visual Workplace Management (VWM).

Further Information

www.corporatepartners.com.au

CTPM Australasia

CTPM Australasia is a membership-based organisation established in 1996 with the charter to develop, promote and advance the knowledge and practice of TPM and TPM3 - Australasian Lean.

TPM3 - Australasian Lean is a proven Australasian approach to applying the principles and practices of the Toyota Production System. It is unique from traditional Lean in that it:

- Initially focuses on **equipment performance** and **reliability** recognising that if your equipment and people aren’t working well, frustrations run high and attempts to introduce Flow and reduce Waste in the Value Streams through Lean thinking becomes unsustainable;
- Provides **rapid returns on investment** through strategically driven cycles of ongoing improvement activity supported by key performance measures which act as drivers for improving overall company performance;
- Reduces **frustrations** and achieves **engagement** of all employees generating a significant positive impact on safety and morale;

- Promotes a **positive behaviour change** of the whole workforce with significant benefits for Customers, Employees and Shareholders; and
- Takes the mystery out of integrating all the principles, tools, and concepts from traditional Lean Production, **cutting through all the confusion** and providing an approach that works.

CTPM and its membership continue to grow. There are now more than 20,000 company employees covered by CTPM membership and over 30 sites spanning 14 Industry Groups from Manufacturing, Mining, Processing, Utilities and Service companies currently progressing their TPM3 Australasian Lean journey to World Class Performance.

CTPM is a Registered Training Organisation on the 17 May 2007 to provide:

MCM30104 Certificate III in Competitive Manufacturing

MCM40104 Certificate IV in Competitive Manufacturing

BSB41004 Certificate IV in Business (Frontline Management)

Their approach is to link the training and assessment for Competitive Manufacturing Certificate III and IV to the TPM3 Australasian Lean journey where employees, once enrolled, will be assessed for the required units while they are Team Members of (Cert III), or Team Leaders of (Cert IV) TPM3 Teams.

The benefits for companies taking this approach rather than a traditional training approach are very significant. It allows their employees to be formally recognised with a National Qualification as they contribute to the companies strategically driven improvement initiative, rather than just complete a series of often ad-hoc projects to satisfy their training requirements.

Further Information

Tel: +61 2 4226 6184

Fax: +61 2 4226 6218

<http://ctpm.org.au/>

Innoven

Innoven is a performance driven education solutions provider that customises programs and services to meet specific client needs. Innoven's philosophy is that education solutions should be aligned to generating performance improvement for individuals, organisations and industry. It focuses on resolving core issues within the workplace via an educational and development approach with an emphasis on research and generating sustainable change.

Innoven builds ongoing relationships with individual clients and industries to ensure critical needs are addressed and strategic solutions can be practically applied.

Services

- Cert. III, Cert. IV & Diploma in Competitive Manufacturing
- Leadership
- OHS

Further Information

jbursill@gotafe.vic.edu.au

Kaizen Institute

KAIZEN Institute of Australia is the leading provider of KAIZEN related advisory services in Australia with a particular focus on assisting companies implement KAIZEN philosophies in the Service industry. They work with clients to help transfer skills, empower staff and build internal capabilities and expertise by leveraging their extensive wealth of knowledge on how to improve and sustain effective KAIZEN and change.

They operate in many different sectors and industries: Automotive, Consumer goods, Construction, Financial services, General services, Health and pharmaceutical, Industrial, Mining and metals processing, Telecommunications and Utilities, including many of Australia's leading companies and are regularly invited to speak and run seminars on the local and global stage.

Kaizen Institute offers a globally recognised [Kaizen](#) Certification program for both the service and manufacturing industries that is a tiered qualification & certification program that will enable companies to obtain lean skills based on global best practices.

Further Information

au@kaizen.com

<http://au.kaizen.com/about-us.html>

Lean Capabilities International Pty Ltd

'Lean Thinking' is a business strategy for organisations to improve their practices and processes to become more effective and competitive in the market place. It applies to all parts of all organisations. Lean is not a short-term project!

Lean Capabilities International runs public and in-house 'Lean Thinking' workshops that take participants on a 'Lean Journey' from traditional practices through to world-class practices via a very practical, hands-on, 3-part simulation (with Leggo blocks), and associated activities. This simulation is a well proven accelerated way for people to learn the Lean continuous improvement concepts, and understand how they fit together as an overall, yet simple system. A key focus is on the Leading & Managing Change aspects that are necessary for effective and sustained positive results to the organisation, including its profits and cash-flow. One of the topics we cover is 'How to implement Lean in an organisation that has no time to implement Lean'.

Lean Capabilities International has a team of passionate, expert Lean Coaches that are also available to organisations to coach, mentor, empower and motivate people at all levels within the organisation to become skilled in implementing Lean practices into their specific workplace themselves. Rather than trying to do Lean 'to' the organisation, Lean Capabilities Coaches assist the organisation to take on Lean Thinking. This engagement of the employees develops accountability and sustainability.

Other related services are available to help organisations accelerate along their Lean journey, including conducting Lean Best Practice Assessments and audits, and identifying areas for improvement within the organisation to assist it in keeping on track with implementation.

Further Information

dkeay@leancapabilities.com

<http://www.leancapabilities.com/about-us>

Lean Education Research Centre (LERC) based at Cardiff University

LERC is one of the Cardiff University Business School's major research centres, with around 20 staff and a track record of innovative Research, Executive Education and Innovation and Engagement activities. It was founded by Professor Peter Hines and Daniel T Jones in 1994. The centre is part of the Business School's Logistics and Operations Management (LOM) section and is a contributor to the EPSRC Cardiff University Innovative Manufacturing Research Centre.

Research is focused on the application and meaning of lean thinking in a variety of different contexts and environments. Projects tend to be collaborative in nature, often involving a number of organisations who come together as a network, with common issues that the particular research programme addresses. The degree education activity is focused on the MSc in Lean Operations - the world's first lean masters programme, while Innovation and Engagement includes open and bespoke short courses and knowledge transfer activities. Professional Development for executives is offered.

<http://www.leanenterprise.org.uk/>

LEAN Rt

LEAN Rt was established by SIRF Roundtables to specialise in working with site managers to establish a Lean/Competitive Manufacturing culture in their workplace.

Services include one or two day training programs such as:

- 5s
- Quick Changeover/SMED
- Root Cause Analysis
- Mistake Proofing
- 7 Quality Tools
- Value Stream Mapping
- Reliability for Operators
- Process Control
- Pull Systems
- Standardization
- Planning and Scheduling

They also provide accredited training in Certificate III and Certificate IV in Competitive Manufacturing through an 18 to 24 month Government subsidised program which is delivered on site.

For companies with less than ten people wanting to do the training we organise a cluster with other nearby companies to ensure that the training is onsite and affordable.

Further Information

Joanne Law at joanne.law@sirft.com.au

Luzerne

Are you committed to continually improving your company? Do you recognise areas that can be improved possibly in production, delivery times, inventory systems, quality and customer service? Are you setting the best KPIs for your business and monitoring them diligently? Luzerne and LEAN may have the answer! At Luzerne, we can reduce the cost of your processes increasing your profitability by analysing your systems and influencing the culture of your company to think LEAN.

Luzerne consultants have used Lean Philosophies in the following industries:

- Food
- Automotive
- Heavy Transport
- Medical
- Plastics

However, they can be used in almost any industry/application including Finance, Consumer Goods, Retail and Government Organisations.

Some of the ways we address the issues that companies commonly see and the tools used to improve these issues are listed below:

- Overproduction Demand Analysis
- Transportation Process Flow Diagram, Layout
- Waiting Scheduling, Load Leveling
- Inventory Red Tag Program, 5S
- Motion Metrics, Layout Drawings
- Over Processing Design Analysis, Benchmarking
- Defects Quality Analysis, Kaizen, Root Cause Analysis.

Luzerne uses tailored programs to work with clients to think LEAN. This culture will increase profitability and quality performance of your organisation.

Further Information

Ben Murphy at ben@luzerne.com.au

Sascha Humphreys at sascha@luzerne.com.au

Optim

Optim was formed in 1993 to identify, deliver and support business improvement strategies for manufacturing and service sector industries. Optim's mission is to create an environment in client companies where each of the stakeholders can learn, work and prosper together. Optim guarantee productivity and service improvement and transfer ownership of the improvement process to clients.

OPTIM has over the past decade seen the need for an all Australian approach to continuous improvement to satisfy the specific needs of our culture and industries. Optim has taken the proven international continuous improvement ideas and techniques and developed them into simple, down to earth, practical approaches that people can feel comfortable applying and using.

Further Information

Ray Clark at ray@optim.com.au

Selga International Pty Ltd

The competitive manufacturing training package integrates into its units of competency, many Lean and Six Sigma methodologies such as:

- Value Stream Mapping
- 5S and Visual Controls,
- TPM,
- JIT,
- Mistake Proofing
- Root Cause Analysis,
- Variance Reduction,
- Statistical Process Control and
- Change Management.

The training also includes units covering project implementation, leadership skills and participation in actual improvement projects.

MSA31108 Certificate III in Competitive Manufacturing

MSA41108 Certificate IV in Competitive Manufacturing

MSA51108 Diploma of Competitive Manufacturing

Further Information

Phone: +61 2 9238 6185

Email: training@segla.com.au

Swinburne University of Technology

The Centre is at the core of research, development and implementation of training products for new manufacturing and works strategically with industries, research centres and the VET sector to identify the knowledge and skills required for emerging technologies.

The Advanced Technology Training Capability Alliance (ATTCA) is a network of institutes which deliver customised 'lean' training to Victoria's manufacturing industries.

http://www.tafe.swinburne.edu.au/eng/cnm/Swinburne_Cluster_Program_1.pdf

TexSkill/ The Institute for Lean Systems

In response to demand for lean education in Australia, TexSkill and American lean facilitators, The Institute for Lean Systems, have committed to supplying the very best in lean education to Australian Industry.

TexSkill/ILS are leading providers of accredited vocational lean transformation and workplace skill development programs in Australia. Focussing on a whole of business approach TexSkill has provided lean education and training to more than 15 companies nationally including Bonds, Viscount Plastics and Frigrite.

The TexSkill/ILS approach couples the human systems with the technical skills needed to create a lean culture. The team is committed to helping an organisation realise the benefits

of process improvement, and to develop the people needed for the sustainability of a 'learning' organisation.

From complete organisation transformation to programs tailored specifically to individual company needs, TexSkill/ILS can help you develop the skills needed to create an organisation focused on continuous improvement.

Further Information

Karen Abberfield at karen.abberfield@texskill.com.au

Ray Littlefield at ray.littlefield@theleanway.com

University of South Australia (UniSA)

UniSA's Strategic Partnership's Lean site provides the key training, skills and knowledge to become a truly lean enterprise. They aim to be a continual source of advanced Lean Thinking training, research and application across all sectors of the economy in Australia, through Seminars, workshops, conferences, networking, publications, certificate courses and formal University of South Australia courses.

The University of South Australia's Strategic Partnerships unit in partnership with the Lean Education Application Network (LEANetwork) provides a series of Lean workshops. Each training workshop is designed to include an introduction to Lean Thinking, customer value concepts, the eight wastes of Lean, continuous improvement (Kaizen) coupled with a balanced mix of the topic theory and practical application.

The University of South Australia's Strategic Partnerships unit in conjunction with the Lean Enterprise Research Centre at Cardiff University is delivering the internationally acclaimed Lean Certificate course here in Australia: "**Principles of Lean Thinking.**" This course is designed to provide participants with a broad understanding of the Lean Principles, methods and practices to assist enterprises with their Lean implementation, creation of Lean champions, improvement of leaders, change of management for increased productivity and customer value. Presenters include the world renowned Lean thinkers, authors, educators, researchers and implementers, Professor Peter Hines, John Bicheno and Gary Griffiths, from the Lean Enterprise Research Centre at Cardiff University.

Vative

Vative can streamline your business using methodical Lean tools. Turn key solutions in Lean Strategic Business Analysis, Lean Line Design, Process Optimisation, Lean Equipment Design and Manufacture of Special Purpose Machines.

These methods apply to all industries including Manufacturing, Logistics, Fast Food, Cleaning Services, Nursing, Restaurants, Events, Customer Queuing systems and much more. Vative systems are developed using Lean Principles, international experience and 16 years of industry know how. If you have a system, we are likely to have an improvement! We work with your people to achieve sustained results.

For more information, contact Steven Farrugia at Steven.Farrugia@vative.com.au

4. Other Useful Resource Information (contemporary)

Websites

www.leanuk.org

www.leanglobal.org

www.lean.org (in particular, article on training recommendations for implementing lean)

www.lean.org.au

www.leanskills.org

www.leanonline.com.au

www.dsf.org.au

www.tvetaustralia.com.au

www.au.kaizen.com/competencies/training

www.gembapantarei.com/lean

Superfactory

Superfactory <http://www.superfactory.com/> is dedicated to spreading manufacturing and enterprise excellence information with an aim to improve manufacturing efficiency and productivity worldwide. It has an extensive set of resources for training.

Lean Manufacturing: Leading the way

This is an interactive CD ROM and supplementary Learners' Guide, Trainers' Guide and Resource Sheets for people working in the manufacturing or service industries. The resource is designed to assist employees develop specific skills in leading teams in the implementation of lean practices in the workplace. The resource will support learners with workplace English language and literacy needs, but is equally suited to those who do not require additional support.

The resource will support the MCM04 Competitive Manufacturing Training Package and the following units of competency are covered:

- MCMC210A Manage the impact of change on own work
- MCMC410A Lead change in a manufacturing environment
- MCMC411A Lead a competitive manufacturing team
- MCMC413A Lead team culture improvement

Lean manufacturing: solving problems, working together

This resource kit contains a CD ROM, supported by a learner guide, a trainer guide and a booklet containing resource sheets. The CD ROM focuses on strengthening and developing the knowledge and skills of workers in manufacturing companies. It provides information about the concepts of 'lean manufacturing' and 'competitive management' and introduces some basic tools that can be used by work teams to solve production problems.

Editorial details

Corporate author: Workplace Learning Initiatives

Imprint: Canberra: DEST, 2006. 36 p.; 46 p.; 70 p. + CD ROM

Availability

Workplace Learning Initiatives Pty Ltd
2-4 Mephan Street
Maribyrnong VIC 3032
Australia

Phone: 03 9317 6000
Fax: 03 9317 6099
Email: enquiries@wli.com.au

5S in Manufacturing for Team Leaders

A 20 min DVD which uses practical and relevant workplace examples to develop the communication and leadership skills required by workers to help others apply the 5S (Sort, Set, Shine, Standardise and Sustain) procedures to their job and work area.

The resource will support the Certificate IV in Competitive Manufacturing from the MSA07 Manufacturing Training Package, specifically the competency MSACMT440A Lead 5S in a manufacturing environment from MSA41108. Trainers and organisations can use this resource for refresher purposes, distance education, induction of new staff and as a learning aid for in-house training.

Editorial Details:

Author / Publisher: Manufacturing and Engineering Skills Advisory Body inc. and Fran Haarsma Productions, 2009

Availability:

Ideas That Work
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Email: ideas@ideasthatwork.com.au
Website: www.ideasthatwork.com.au

Appendix B Manufacturing Skills Training Package – relevant qualifications and units

MSA21108 Certificate II in Competitive Manufacturing

To be awarded a Certificate II in Competitive Manufacturing, competency must be achieved in 10 units of competency chosen from the three groupings of Mandatory, Competitive Manufacturing electives and general electives. There are three mandatory units and seven elective units to be completed as identified below.

Mandatory units

The following two units must be completed:

MSACMC210 Manage the impact of change on own work; and
MSAPMOHS200A Work safely.

Plus one of:

MSACMS200 Apply competitive manufacturing practices; or
MSACMS201 Sustain process improvements.

Elective units

Seven elective units to be chosen as specified from the two groups below.

Competitive Manufacturing elective units

At least two units must be selected from this list:

MSACMS200 Apply competitive manufacturing practices (if not selected in core)
MSACMS201 Sustain process improvements (if not selected in core)
MSACMT221 Apply Just in Time (JIT) procedures
MSACMT230 Apply cost factors to work practices
MSACMT231 Interpret product costs in terms of customer requirements
MSACMT240 Implement 5S procedures in a manufacturing environment
MSACMT250 Monitor process capability
MSACMT251 Apply quality standards
MSACMT260 Use planning software systems in manufacturing
MSACMT261 Use SCADA systems in manufacturing
MSACMT270 Use sustainable energy practices
MSACMT271 Use sustainable environmental practices
MSACMT280 Undertake basic root cause analysis
MSACMT281 Apply proactive maintenance strategy

MSA31108 Certificate III in Competitive Manufacturing

The Competitive Manufacturing units of competency are categorised into three groups:

- Systems units (MSACMS);
- Change/interpersonal units (MSACMC); and
- Tools units (MSACMT).

The Certificate III requires a total of eight units comprised of:

- a minimum number of CM systems units from the specified list;
- a minimum number of CM change/interpersonal units from the specified list;
- a minimum number of CM tools units from the specified list; and

- other CM units as specified and/or up to four relevant units from other endorsed Training Packages.

Packaging Rules

To be awarded a Certificate III in Competitive Manufacturing, competency must be achieved in eight units of competency chosen as specified from the groups listed below. At least three of these units must be from the Competitive Manufacturing (CM) 400 series units. Note that units marked with an asterisk have prerequisite requirements. The prerequisites for these units are to be counted in the total number of units. Refer to the prerequisite table or the individual units.

CM Systems

Two CM Systems units must be chosen, as specified below.

This unit must be chosen:

MSACMS200A Apply competitive manufacturing practices and a maximum of one of the following units:

MSACMS201A Sustain process improvements

MSACMS401A Ensure process improvements are sustained

MSACMS405A Lead a manufacturing team using a balanced score card approach

CM Change/interpersonal

A maximum of one of the following units must be chosen:

MSACMC210A Manage the impact of change on own work

MSACMC410A Lead change in a manufacturing environment

MSACMC411A Lead a competitive manufacturing team

MSACMC413A Lead team culture improvement

CM Tools

A minimum of one of the following units must be chosen:

MSACMT421A Facilitate a Just in Time (JIT) system

MSACMT423A Monitor a manufacturing levelled pull system

MSACMT430A Improve cost factors in work practices

MSACMT432A Analyse manual handling processes

MSACMT440A Lead 5S in a manufacturing environment

MSACMT441A Facilitate continuous improvement in manufacturing

MSACMT450A Undertake process capability improvements *

MSACMT451A Mistake proof a production process

MSACMT452A Apply statistics to processes in Manufacturing

MSACMT453A Use six sigma techniques *

MSACMT460A Use planning software systems in manufacturing *

MSACMT461A Facilitate SCADA systems in manufacturing team or work area *

MSACMT481A Undertake proactive maintenance analyses

MSACMT482A Assist in implementing a proactive maintenance strategy

MSACMT483A Support proactive maintenance

MSAPMSUP390A Use structured problem solving tools

Balance of units

The balance of units (up to a maximum of four) may be drawn from any combination of:

- the CM Tools units listed above;
- the other CM elective units listed below, or
- units from other relevant Training Packages (as specified below).

Other CM elective units

MSACMT220A Apply quick changeover procedures
 MSACMT221A Apply Just in Time (JIT) procedures
 MSACMT230A Apply cost factors to work practices
 MSACMT231A Interpret product costs in terms of customer requirements
 MSACMT240A Apply 5S procedures in a manufacturing environment
 MSACMT250A Monitor process capability
 MSACMT251A Apply quality standards
 MSACMT260A Use planning software systems in manufacturing
 MSACMT261A Use SCADA systems in manufacturing
 MSACMT270A Use sustainable energy practices
 MSACMT271A Use sustainable environmental practices
 MSACMT280A Undertake root cause analysis
 MSACMT281A Contribute to the application of a proactive maintenance strategy
 MSAENV272A Participate in environmentally sustainable work practices

MSA41108 Certificate IV in Competitive Manufacturing

The Competitive Manufacturing units of competency are categorised into three groups:

- Systems units (MSACMS);
- Change/interpersonal units (MSACMC); and
- Tools units (MSACMT).

The Certificate IV requires a total of 10 units comprised of:

- a minimum number of CM systems units from the specified list;
- a minimum number of CM change/interpersonal units from the specified list;
- a minimum number of CM tools units from the specified list; and
- other CM units as specified and/or up to four relevant units from other endorsed Training Packages.

Packaging Rules

To be awarded a Certificate IV in Competitive Manufacturing, competency must be achieved in 10 units of competency chosen as specified from the groups listed below. The 10 units must include at least three Competitive Manufacturing (CM) 400 series units that are additional to any already achieved as part of the Certificate III or other recognition pathway. Note that units with an asterisk have prerequisite requirements. The prerequisites for these units are to be counted in the total number of units. Refer to the prerequisite table or the individual units.

CM Systems

A minimum of one of the following units must be chosen:

MSACMS400A Implement a competitive manufacturing system
 MSACMS401A Ensure process improvements are sustained
 MSACMS405A Lead a manufacturing team using a balanced score card approach

CM Change/interpersonal

Two CM Change/interpersonal units must be chosen as specified below.

This unit must be chosen:

MSACMC410A Lead change in a manufacturing environment and a maximum of one of the following units:

MSACMC411A Lead a competitive manufacturing team
 MSACMC413A Lead team culture improvement

CM Tools

A minimum of two of the following units must be chosen.

- MSACMT421A Facilitate a Just in Time (JIT) system
- MSACMT423A Monitor a manufacturing levelled pull system
- MSACMT430A Improve cost factors in work practices
- MSACMT432A Analyse manual handling processes
- MSACMT440A Lead 5S in a manufacturing environment
- MSACMT441A Facilitate continuous improvement in manufacturing
- MSACMT450A Undertake process capability improvements *
- MSACMT451A Mistake proof a production process
- MSACMT452A Apply statistics to processes in manufacturing
- MSACMT453A Use six sigma techniques *
- MSACMT460A Use planning software systems in manufacturing *
- MSACMT461A Facilitate SCADA systems in manufacturing team or work area *
- MSACMT481A Undertake proactive maintenance analyses
- MSACMT482A Assist in implementing a proactive maintenance strategy
- MSACMT483A Support proactive maintenance
- MSAENV472A Implement and monitor environmentally sustainable work practices
- MSAPMSUP390A Use structured problem solving tools

Balance of units

The balance of units (up to a maximum of five) may be drawn from any combination of:

- the CM Systems units listed above
- the CM Tools units listed above
- the other CM elective units listed below (note that a maximum of two of these can be from 200 series units)
- units from other endorsed Training Packages, as specified below.

Other CM elective units

- MSACMC210A Manage the impact of change on own work
- MSACMC610A Manage relationships with non-customer external organisations
- MSACMC611A Manage people relationships
- MSACMC612A Manage workplace learning
- MSACMC613A Facilitate holistic culture improvement in a manufacturing enterprise
- MSACMC614A Develop a communications strategy to support production
- MSACMS200A Apply competitive manufacturing practices
- MSACMS201A Sustain process improvements
- MSACMS600A Develop a competitive manufacturing system
- MSACMS601A Analyse and map a value chain *
- MSACMS602A Manage a value chain *
- MSACMS603A Develop manufacturing related business plans
- MSACMS604A Manage competitive manufacturing processes in a jobbing shop environment*
- MSACMS605A Develop a balanced score card for use in competitive manufacturing *
- MSACMS606A Introduce competitive manufacturing to a small or medium enterprise
- MSACMT220A Apply quick changeover procedures
- MSACMT221A Apply Just in Time (JIT) procedures
- MSACMT230A Apply cost factors to work practices
- MSACMT231A Interpret product costs in terms of customer requirements
- MSACMT240A Apply 5S procedures in a manufacturing environment

MSACMT250A Monitor process capability
 MSACMT251A Apply quality standards
 MSACMT260A Use planning software systems in manufacturing
 MSACMT261A Use SCADA systems in manufacturing
 MSACMT270A Use sustainable energy practices
 MSACMT271A Use sustainable environmental practices
 MSACMT280A Undertake root cause analysis
 MSACMT281A Contribute to the application of a proactive maintenance strategy
 MSACMT452A Apply statistics to processes in manufacturing
 MSACMT620A Develop quick changeover procedures
 MSACMT621A Develop a Just in Time (JIT) system *
 MSACMT622A Design a process layout
 MSACMT623A Develop a levelled pull system of manufacturing
 MSACMT630A Optimise cost of product *
 MSACMT631A Undertake value analysis of product costs in terms of customer requirements*
 MSACMT632A Analyse cost implications of maintenance strategy
 MSACMT640A Manage 5S system in a manufacturing environment
 MSACMT641A Implement a continuous improvement system
 MSACMT650A Determine and improve process capability *
 MSACMT652A Design an experiment *
 MSACMT653A Apply six sigma to process control and improvement *
 MSACMT660A Develop the application of enterprise systems in manufacturing
 MSACMT661A Determine and establish information collection requirements and processes
 MSACMT662A Develop a documentation control strategy for a manufacturing enterprise
 MSACMT670A Develop and manage sustainable energy practices
 MSACMT671A Develop and manage sustainable environmental practices
 MSACMT675A Facilitate the development of a new product *
 MSACMT681A Develop a proactive maintenance strategy
 MSACMT682A Adapt a proactive maintenance strategy to the process manufacturing sector*
 MSACMT683A Adapt a proactive maintenance strategy for a seasonal or cyclical manufacturing operation*
 MSAENV272A Participate in environmentally sustainable work practices
 MSAENV672A Develop workplace policy and procedures for sustainability

MSA51108 Diploma of Competitive Manufacturing

The Competitive Manufacturing units of competency are categorised into three groups:

- Systems units (MSACMS);
- Change/interpersonal units (MSACMC); and
- Tools units (MSACMT).

The Diploma requires a total of 20 units comprised of:

- a minimum number of CM systems units from the specified list;
- a minimum number of CM change/interpersonal units from the specified list;
- a minimum number of CM tools units from the specified list; and
- other CM units as specified and/or up to eight relevant units from another Training Package.

Packaging Rules

To be awarded a Diploma of Competitive Manufacturing, competency must be achieved in 20 units of competency chosen as specified from the groups listed below. Note that units with an asterisk have prerequisite requirements. The prerequisites for these units are to be counted in the total number of units. Refer to the prerequisite table or the individual units.

CM Systems

A minimum of one of the following CM Systems units must be chosen:

MSACMS600A Develop a competitive manufacturing system

MSACMS601A Analyse and map a value chain *

MSACMS602A Manage a value chain *

MSACMS603A Develop manufacturing related business plans

MSACMS604A Manage competitive manufacturing processes in a jobbing shop environment*

MSACMS605A Develop a balanced score card for use in competitive manufacturing*

MSACMS606A Introduce competitive manufacturing to a small or medium enterprise

CM Change/interpersonal

A minimum of one of the following units must be chosen:

MSACMC610A Manage relationships with non-customer external organisations

MSACMC611A Manage people relationships

MSACMC612A Manage workplace learning

MSACMC613A Facilitate holistic culture improvement in a manufacturing enterprise

MSACMC614A Develop a communications strategy to support production

CM Tools

A minimum of two of the following units must be chosen:

MSACMT452A Apply statistics to processes in manufacturing

MSACMT620A Develop quick changeover procedures

MSACMT621A Develop a Just in Time (JIT) system *

MSACMT622A Design a process layout

MSACMT623A Develop a levelled pull system of manufacturing

MSACMT630A Optimise cost of product *

MSACMT631A Undertake value analysis of product costs in terms of customer requirements*

MSACMT632A Analyse cost implications of maintenance strategy

MSACMT640A Manage 5S system in a manufacturing environment

MSACMT641A Implement a continuous improvement system

MSACMT650A Determine and improve process capability *

MSACMT652A Design an experiment *

MSACMT653A Apply six sigma to process control and improvement *

MSACMT660A Develop the application of enterprise systems in manufacturing

MSACMT661A Determine and establish information collection requirements and processes

MSACMT662A Develop a documentation control strategy for a manufacturing enterprise

MSACMT670A Develop and manage sustainable energy practices

MSACMT671A Develop and manage sustainable environmental practices

MSACMT675A Facilitate the development of a new product *

MSACMT681A Develop a proactive maintenance strategy

MSACMT682A Adapt a proactive maintenance strategy to the process manufacturing sector*

MSACMT683A Adapt a proactive maintenance strategy for a seasonal or cyclical manufacturing operation*

MSAENV672A Develop workplace policy and procedures for sustainability

Balance of units

The balance of units (up to a maximum of 16) may be drawn from any combination of:

- the CM units listed above
- a maximum of 10 units from the other CM elective units listed below (note that only two of the 10 can be chosen from the 200 series units)
- units from other endorsed Training Packages, as specified below.

Other CM elective units

MSACMC210A Manage the impact of change on own work

MSACMC410A Lead change in a manufacturing environment

MSACMC411A Lead a competitive manufacturing team

MSACMC413A Lead team culture improvement

MSACMS200A Apply competitive manufacturing practices

MSACMS201A Sustain process improvements

MSACMS400A Implement a competitive manufacturing system

MSACMS401A Ensure process improvements are sustained

MSACMS405A Lead a manufacturing team using a balanced score card approach

MSACMT220A Apply quick changeover procedures

MSACMT221A Apply Just in Time (JIT) procedures

MSACMT230A Apply cost factors to work practices

MSACMT231A Interpret product costs in terms of customer requirements

MSACMT240A Apply 5S procedures in a manufacturing environment

MSACMT250A Monitor process capability

MSACMT251A Apply quality standards

MSACMT260A Use planning software systems in manufacturing

MSACMT261A Use SCADA systems in manufacturing

MSACMT270A Use sustainable energy practices

MSACMT271A Use sustainable environmental practices

MSACMT280A Undertake root cause analysis

MSACMT281A Contribute to the application of a proactive maintenance strategy

MSACMT421A Facilitate a Just in Time (JIT) system

MSACMT423A Monitor a manufacturing levelled pull system

MSACMT430A Improve cost factors in work practices

MSACMT432A Analyse manual handling processes

MSACMT440A Lead 5S in a manufacturing environment

MSACMT441A Facilitate continuous improvement in manufacturing

MSACMT450A Undertake process capability improvements *

MSACMT451A Mistake proof a production process

MSACMT453A Use six sigma techniques *

MSACMT460A Use planning software systems in manufacturing *

MSACMT461A Facilitate SCADA systems in manufacturing team or work area *

MSACMT481A Undertake proactive maintenance analyses

MSACMT482A Assist in implementing a proactive maintenance strategy

MSACMT483A Support proactive maintenance

MSAENV272A Participate in environmentally sustainable work practices

MSAENV472A Implement and monitor environmentally sustainable work practices
MSAPMSUP390A Use structured problem solving tools
A maximum of eight relevant units may be selected from another endorsed

MSA61108 Advanced Diploma of Competitive Manufacturing

The Competitive Manufacturing units of competency are categorised into three groups:

- Systems units (MSACMS);
- Change/interpersonal units (MSACMC); and
- Tools units (MSACMT).

The Advanced Diploma requires a total of 30 units comprised of:

- a minimum number of CM systems units from the specified list;
- a minimum number of CM change/interpersonal units from the specified list;
- a minimum number of CM tools units from the specified list; and
- other CM units as specified and up to eight relevant units from another Training Package.

Packaging Rules

To be awarded an Advanced Diploma of Competitive Manufacturing, competency must be achieved in 30 units of competency chosen as specified from the groups listed below. Note that units with an asterisk have prerequisite requirements. The prerequisites for these units are to be counted in the total number of units. Refer to the prerequisite table or the individual units.

CM Systems

A minimum of two of the following units must be chosen:

MSACMS600A Develop a competitive manufacturing system

MSACMS601A Analyse and map a value chain *

MSACMS602A Manage a value chain *

MSACMS603A Develop manufacturing related business plans

MSACMS604A Manage competitive manufacturing processes in a jobbing shop environment*

MSACMS605A Develop a balanced score card for use in competitive manufacturing *

MSACMS606A Introduce competitive manufacturing to a small or medium enterprise

CM Change/interpersonal

A minimum of two units of the following units must be chosen:

MSACMC610A Manage relationships with non-customer external organisations

MSACMC611A Manage people relationships

MSACMC612A Manage workplace learning

MSACMC613A Facilitate holistic culture improvement in a manufacturing enterprise

MSACMC614A Develop a communications strategy to support production

CM Tools

A minimum of four units of the following CM Tools units must be chosen:

MSACMT452A Apply statistics to processes in manufacturing

MSACMT620A Develop quick changeover procedures

MSACMT621A Develop a Just in Time (JIT) system *

MSACMT622A Design a process layout

MSACMT623A Develop a levelled pull system of manufacturing

MSACMT630A Optimise cost of product *

MSACMT631A Undertake value analysis of product costs in terms of customer requirements *

MSACMT632A Analyse cost implications of maintenance strategy

MSACMT640A Manage 5S system in a manufacturing environment

MSACMT641A Implement a continuous improvement system

MSACMT650A Determine and improve process capability *

MSACMT652A Design an experiment *

MSACMT653A Apply six sigma to process control and improvement *

MSACMT660A Develop the application of enterprise systems in manufacturing

MSACMT661A Determine and establish information collection requirements and processes

MSACMT662A Develop a documentation control strategy for a manufacturing enterprise

MSACMT670A Develop and manage sustainable energy practices

MSACMT671A Develop and manage sustainable environmental practices

MSACMT675A Facilitate the development of a new product *

MSACMT681A Develop a proactive maintenance strategy

MSACMT682A Adapt a proactive maintenance strategy to the process manufacturing sector*

MSACMT683A Adapt a proactive maintenance strategy for a seasonal or cyclical manufacturing operation*

MSAENV672A Develop workplace policy and procedures for sustainability

Balance of units

The balance of units (up to a maximum of 22) may be drawn from any combination of:

- the CM units listed above
- a maximum of 10 units from the other CM elective units listed below (note that a only two of the 10 can be chosen from the 200 series units)
- units from other endorsed Training Packages, as specified below.

Other CM elective units

MSACMC210A Manage the impact of change on own work

MSACMC410A Lead change in a manufacturing environment

MSACMC411A Lead a competitive manufacturing team

MSACMC413A Lead team culture improvement

MSACMS200A Apply competitive manufacturing practices

MSACMS201A Sustain process improvements

MSACMS400A Implement a competitive manufacturing system

MSACMS401A Ensure process improvements are sustained

MSACMS405A Lead a manufacturing team using a balanced score card approach

MSACMT220A Apply quick changeover procedures

MSACMT221A Apply Just in Time (JIT) procedures

MSACMT230A Apply cost factors to work practices

MSACMT231A Interpret product costs in terms of customer requirements

MSACMT240A Apply 5S procedures in a manufacturing environment

MSACMT250A Monitor process capability

MSACMT251A Apply quality standards

MSACMT260A Use planning software systems in manufacturing

MSACMT261A Use SCADA systems in manufacturing

MSACMT270A Use sustainable energy practices

MSACMT271A Use sustainable environmental practices

MSACMT280A Undertake root cause analysis
 MSACMT281A Contribute to the application of a proactive maintenance strategy
 MSACMT421A Facilitate a Just in Time (JIT) system
 MSACMT423A Monitor a manufacturing levelled pull system
 MSACMT430A Improve cost factors in work practices
 MSACMT432A Analyse manual handling processes
 MSACMT440A Lead 5S in a manufacturing environment
 MSACMT441A Facilitate continuous improvement in manufacturing
 MSACMT450A Undertake process capability improvements *
 MSACMT451A Mistake proof a production process
 MSACMT453A Use six sigma techniques *
 MSACMT460A Use planning software systems in manufacturing *
 MSACMT461A Facilitate SCADA systems in manufacturing team or work area *
 MSACMT481A Undertake proactive maintenance analyses
 MSACMT482A Assist in implementing a proactive maintenance strategy
 MSACMT483A Support proactive maintenance
 MSAENV272A Participate in environmentally sustainable work practices
 MSAENV472A Implement and monitor environmentally sustainable work practices
 MSAPMSUP390A Use structured problem solving tools

MSA71109 Graduate Certificate in Competitive Manufacturing

This qualification provides professional development training and recognition to people exercising leadership or change management functions in an organisation using lean principles and other competitive manufacturing processes.

Job roles/employment outcomes

The Vocational Graduate Certificate in Competitive Manufacturing provides professional development for individuals who already have some previous training or work experience in competitive manufacturing systems and processes at AQF III or higher.

Application

This qualification applies to team leaders, supervisors, managers and technical experts responsible for implementing competitive manufacturing practices in a manufacturing enterprise or working in part of a value chain linked to a manufacturing enterprise.

Pathways into the qualification

Entrants to the Vocational Graduate Certificate in Competitive Manufacturing are required to have one or more of the following:

- a relevant Advanced Diploma or Diploma, or a relevant Certificate IV or Certificate III together with significant relevant vocational practice;
- relevant extensive vocational practice without formal qualifications;
- a Bachelor Degree; and or
- another higher education qualification, with relevant vocational practice.

A relevant qualification that would support entry to this Vocational Graduate Certificate should include aspects of manufacturing processes such as productivity measurement, efficiency and effectiveness. For the purposes of this qualification the term 'vocational practice' is defined as experience with competitive processes, systems or tools in a manufacturing organisation or in an organisation that has applied similar systems and tools as a member of a manufacturing value chain.

Pathways from the qualification

Further training pathways from this qualification includes MSA81109 Vocational Graduate Diploma of Competitive Manufacturing. There are no licensing implications for this qualification.

Packaging Rules

To be awarded a Vocational Graduate Certificate in Competitive Manufacturing competency must be achieved in **four (4)** units of competency chosen as specified below:

- **three(3)** units of competency from Group 1; and
- **one (1)** additional unit of competency from Group 1 **or** Group 2.

Group 1 - Competitive manufacturing graduate certificate units

Select at least **three (3)** units from the list below:

MSACMG700A Review continuous improvement processes

MSACMG701A Prepare for and implement change

MSACMG702A Review manufacturing practice tools and techniques

MSACMG703A Analyse process changes

MSACMG704A Facilitate improvements in the internal value chain

MSACMG705A Undertake a qualitative review of a process change

MSACMG706A Build relationships between teams in a manufacturing environment

MSACMG707A Respond to a major non-conformance

MSACMG708A Capture learning from daily activities in a manufacturing organisation

MSACMG709A Facilitate improvements in the external value chain

MSACMG710A Improve visual management in the workplace

MSACMG711A Manage benchmarking studies

MSACMG712A Lead a problem solving process to determine and solve root cause

MSACMG800A Analyse data for relevance to organisational learning

MSACMG801A Develop the competitive manufacturing approach

MSACMG802A Audit the use of competitive tools

The remaining **one (1)** unit can be selected from Group 1 above or Group 2 below.

Group 2 - Other competitive manufacturing units

Prerequisite units are listed. Note that prerequisite units **are not** included in the count towards the four (4) units required for this qualification. If the prerequisite unit has not already been achieved through prior study or RPL, then completion of the prerequisite(s) in italics is also required.

Unit code Title Prerequisite units

MSAENV672A Develop workplace policy and procedures for sustainability

MSACMS601A Analyse and map a value chain* *MSACMT631A Undertake value analysis of product costs in terms of customer requirements MSACMT230A Apply cost factors to work practices*

MSACMS605A Develop a balanced score card for use in competitive manufacturing*

MSACMT280A Undertake root cause analysis MSACMS601A Analyse and map a value chain

MSACMT631A Undertake value analysis of product costs in terms of customer requirements

MSACMS606A Introduce competitive manufacturing to a small or medium enterprise

MSACMT620A Develop quick changeover procedures

MSACMT622A Design a process layout

MSACMT623A Develop a levelled pull system of manufacturing

MSACMT630A Optimise cost of product* *MSACMT631A Undertake value analysis of product costs in terms of customer requirements*

MSACMT631A Undertake value analysis of product costs in terms of customer requirements* *MSACMT230A Apply cost factors to work practices*

MSACMT632A Analyse cost implications of maintenance strategy

MSACMT640A Manage 5S system in a manufacturing environment

MSACMT650A Determine and improve process capability

MSACMT652A Design an experiment* *MSACMT452A Apply statistics to processes in manufacturing*

MSACMT653A Apply six sigma to process control and improvement* *MSACMT452A Apply statistics to processes in manufacturing*

MSACMT670A Develop and manage sustainable energy practices

MSACMT681A Develop a proactive maintenance strategy

MSACMT682A Adapt a proactive maintenance strategy to the process manufacturing sector*

MSACMT681A Develop a proactive maintenance strategy

MSACMT683A Adapt a proactive maintenance strategy for a seasonal or cyclical manufacturing operation* *MSACMT681A Develop a proactive maintenance strategy*

MSA81109 Graduate Diploma of Competitive Manufacturing

This qualification provides comprehensive professional development training and recognition to people exercising major leadership and accountability for change management functions in an organisation using lean principles and other competitive manufacturing processes.

Job roles/employment outcomes

The Vocational Graduate Diploma of Competitive Manufacturing provides professional development for individuals who already have some previous training or work experience in competitive manufacturing systems and processes at AQF III or higher.

Application

This qualification applies to team leaders, supervisors, managers and technical experts responsible for implementing competitive manufacturing practices in a manufacturing enterprise or working in part of a value chain linked to a manufacturing enterprise.

Pathways into the qualification

Entrants to the Vocational Graduate Diploma of Competitive Manufacturing are required to have one or more of the following:

- MSA71109 Vocational Graduate Certificate in Competitive Manufacturing;
- a relevant Advanced Diploma or Diploma, or a relevant Certificate IV or Certificate III together with significant relevant vocational practice;
- relevant extensive vocational practice without formal qualifications;
- a Bachelor Degree; and or
- another higher education qualification, with relevant vocational practice.

A relevant qualification that would support entry to this Vocational Graduate Diploma should include aspects of manufacturing processes such as productivity measurement, efficiency and effectiveness. For the purposes of this qualification the term 'vocational practice' is defined as experience with competitive processes, systems or tools in a manufacturing organisation or in an organisation that has applied similar systems and tools

as a member of a manufacturing value chain. There are no licensing implications for this qualification.

Packaging Rules

To be awarded a Vocational Graduate Diploma of Competitive Manufacturing Practice competency must be achieved in **eight (8)** units of competency chosen as specified below:

- **five (5)** units of competency from Group 1; and
- **three (3)** units of competency from Group 1 or Group 2.

Group 1 - Competitive manufacturing graduate diploma units

A minimum of **five (5)** units must be chosen from Group 1.

- At least **two (2)** of these units must be selected from Group 1A.
- The remaining **three (3)** units can be selected from Group 1A or Group 1B.

Group 1A

MSACMG800A Analyse data for relevance to organisational learning

MSACMG801A Develop the competitive manufacturing approach

MSACMG802A Audit the use of competitive tools

MSACMG803A Develop models of future state manufacturing practice

MSACMG804A Develop the value chain

MSACMG805A Develop the learning processes of the manufacturing organisation

MSACMG806A Develop and refine systems for continuous improvement in manufacturing organisations

MSACMG807A Develop problem solving capability of a manufacturing organisation

Group 1B

MSACMG700A Review continuous improvement processes

MSACMG701A Prepare for and implement change

MSACMG702A Review manufacturing practice tools and techniques

MSACMG703A Analyse process changes

MSACMG704A Facilitate improvements in the internal value chain

MSACMG705A Undertake a qualitative review of a process change

MSACMG706A Build relationships between teams in a manufacturing environment

MSACMG707A Respond to a major non-conformance

MSACMG708A Capture learning from daily activities in a manufacturing organisation

MSACMG709A Facilitate improvements in the external value chain

MSACMG710A Improve visual management in the workplace

MSACMG711A Manage benchmarking studies

MSACMG712A Lead a problem solving process to determine and solve root cause

The balance of units, to a maximum of **three (3)**, may be selected in any combination from the Group 1 units listed above or from the Group 2 units listed below.

Group 2 - Other competitive manufacturing units

Where prerequisites apply, these are listed in italics. Note that prerequisite units are not included in the count towards the eight units required for this qualification. If the prerequisite unit has not already been achieved through prior study or RPL, then completion of the prerequisite(s) is also required.

Unit code Title Prerequisite units

MSAENV672A Develop workplace policy and procedures for sustainability

MSACMS601A Analyse and map a value chain * *MSACMT631A Undertake value analysis of product costs in terms of customer requirements MSACMT230A Apply cost factors to work practices*

MSACMS602A Manage a value chain* *MSACMS601A Analyse and map a value chain*
MSACMT631A Undertake value analysis of product costs in terms of customer requirements
MSACMS605A Develop a balanced score card for use in competitive manufacturing*
MSACMT280A Undertake root cause analysis MSACMS601A Analyse and map a value chain
MSACMT631A Undertake value analysis of product costs in terms of customer requirements
MSACMS606A Introduce competitive manufacturing to a small or medium enterprise
MSACMT620A Develop quick changeover procedures
MSACMT622A Design a process layout
MSACMT623A Develop a levelled pull system of manufacturing
MSACMT630A Optimise cost of product* *MSACMT631A Undertake value analysis of product costs in terms of customer requirements*
MSACMT631A Undertake value analysis of product costs in terms of customer requirements* *MSACMT230A Apply cost factors to work practices*
MSACMT640A Manage 5S system in a manufacturing environment
MSACMT650A Determine and improve process capability
MSACMT652A Design an experiment* *MSACMT452A Apply statistics to processes in manufacturing*
MSACMT653A Apply six sigma to process control and improvement* *MSACMT452A Apply statistics to processes in manufacturing*
MSACMT670A Develop and manage sustainable energy practices
MSACMT671A Develop and manage sustainable environmental practices
MSACMT681A Develop a proactive maintenance strategy
MSACMT682A Adapt a proactive maintenance strategy to the process manufacturing sector**MSACMT681A Develop a proactive maintenance strategy*
MSACMT683A Adapt a proactive maintenance strategy for a seasonal or cyclical manufacturing operation**MSACMT681A Develop a proactive maintenance strategy*

Appendix C Focus Group Attendees List

Sector/Training Package	Name	Name
Business Services 26 November	<p>Rose Vallen AImm CPMgr Australian Institute of Management SA</p> <p>Peter Cesco</p> <p>David Foreman David Foreman [djfa@ihug.com.au]</p> <p>Graham MacGowan tafeSA Admissions and Curriculum Services</p> <p>Julie Clifford Associate Head of VET</p>	<p>Juanita Pellizzer TexSkill Ltd</p> <p>Angela DiBiase INSURANCE AUSTRALIA GROUP (IAG)</p> <p>Leonie Cooke Quality and Tertiary Education Policy Directorate</p>
Financial Services 26 November	<p>Mary Bawden TAFESA Adelaide City Campus</p> <p>Angela DiBiase INSURANCE AUSTRALIA GROUP (IAG)</p>	<p>Juanita Pellizzer TexSkill Ltd</p> <p>Pauline de Vries Property Services TAFE SA</p>
Education Services 26 November	<p>Tarnya Cruickshank Senior Adviser, Education and Training</p> <p>Joy de Leo OAM JP ACPET</p> <p>Wendy Perry Wendy Perry and Associates Pty Ltd</p> <p>Joy Fisher Surf Life Saving</p> <p>Navtej Bal Imperial College of Trades</p>	<p>Katja Paulaharju Department of Further Education, Employment, Science and Technology Katja.Paulaharju@sa.gov.au</p> <p>Andrew Rehn tafeSA Admissions and Curriculum Services</p> <p>Gaill Layton Manager Children's Services OPDS RTO for DECS.</p> <p>Leonie Cooke Assistant Project Officer Quality and Tertiary Education Policy Directorate</p> <p>Lt Col Retd Bikkar Singh Brar Chief Executive Officer Imperial College of Trades</p>
Printing and Graphic Arts 26 November	Terry Hansen(rang with apology, will send through feedback on survey form)	
Information & Communications Technologies 27 November	<p>Le-anne Wolfenden (MACS PCP) TAFE SA Gawler Campus</p> <p>Anthony Leverenz EWSB Tel: 08 8347 4008</p>	Rob Malcolm

Sector/Training Package	Name	Name
Cultural Services 27 November	Lisa Philip-Harbutt Community Arts Network SA	
Sector/Training Package	Name	Name
Education Services plus others	Juris Liberts Centre for New Manufacturing Swinburne University of Technology Anthony Ellul Victoria University Sally Denning TAFE Development Centre	Peter Schreiner Engineering and Automotive University of Ballarat Robert Rossiter Program Manager Lucy De Vreede Bendigo Regional Institute of TAFE

Appendix D Consultation Feedback

Meeting with Pam McLeod and Wendy Rose – Skills Victoria

The Victorian Skills Commission’s Manufacturing Skills and Training Taskforce commissioned a report in 2008, to identify how efficiency skills, derived from lean manufacturing principles, could be incorporated into the learning process for those taking up a career in manufacturing and other industries, and enable a level of work ready skills to apply in competitive manufacturing and other work environments.

The recommendations from this report were endorsed by the Taskforce and include:

Recommendation	Action
That the Victorian Skills Commission approaches the Industry Skills Councils with a view to undertaking work to develop and introduce lean approaches for all Certificate III qualifications within the Australian Qualifications Framework.	MSA was approached and responded indicating that : <ul style="list-style-type: none"> • they are working on including Competitive Manufacturing units into all their qualifications; and • they will support other ISCs seeking to include Competitive Manufacturing • the rationalising of training packages and qualifications will provide an opportunity to include Competitive Manufacturing units.
That the Victorian Skills Commission requests the Office of Training and Tertiary Education and the Victorian Curriculum and Assessment Authority to undertake work to develop and introduce lean approaches into all Certificate II VET in Schools programs.	The Victorian Curriculum and Assessment Authority has indicated there are opportunities within existing VCE and VET studies for the inclusion of the study of efficient thinking.

By the endorsing of recommendations, the taskforce is showing their strong support for the concepts of lean thinking and the value and relevance to the broader workforce.

There was also support for linking sustainability and lean but with language that is both understood and recognised e.g. efficient thinking.

Paul Kennett, MESAB

Supports the value of lean thinking and its relevance to other sectors.

Raised concerns with introducing more units into the training packages. Packages need to be robust; stream lined and address skills and knowledge required by each industry sector. If this was an initiative that progresses, then a unit/s should be developed and adopted by industries as appropriate; as opposed to industries all developing their own unit/s as they see themselves as unique.

Believed there was merit in developing a new generic unit incorporating lean, green and sustainability available across packages as an elective, but acknowledged rules may need to be more flexible to allow. Some concerns re expression “lean” and believes more readily understood expression might create more interest e.g. problem solving or similar.

Acknowledged value to small and micro businesses but felt they are currently not aware of business benefits of lean business processes, and would remain unaware into the future unless a strategy is implemented that specifically targets them. The usual campaigns through Employer Associations and/or promotional blitz’s using posters, mail outs etc are unlikely to succeed (as demonstrated year after year).

Doesn’t support the notion of secondary students undertaking narrow, specialised units of competency at school, as piloted in Victoria with a couple of schools and the Vic Certificate of Applied Learning (VCAL). This certificate represents about 10-11 % of students only. Implemented in this pilot as 'efficient thinking' which is seen by students as something like a branch of scientology(industry is not well placed to develop language/descriptions that connect with young people - better left to those that work in this area).

Real opportunity to introduce 'lean principles/thinking' through the national secondary school curriculum which is being developed - perhaps through 'problem solving' in the various subject areas, including maths, science, design & technology etc where the problem solving components will be specifically identified.

Peter Canavan (AIG)

These comments reflect the views of the AIG following consultation led by Peter Canavan with his counterparts in other states.

Lean skills and lean thinking are valuable concepts to all and applicable to all industries. To be truly successful and reap all the benefits from lean thinking, a whole of organisation approach is required with commitment and engagement at all levels. As the role and support of management is critical to lean and there is no guarantee that all organisations embrace or support lean thinking, it shouldn’t be included in core units.

An option may be to embed in range statements but some concern re the amount of work for the benefits to be gained. Supported the notion of a new generic unit addressing and linking lean, green and sustainability and offer as an elective in all packages where it can be contextualised to the industry, package and client as required

Didn’t see the language of “lean” as an issue and supported the TAA Package having more content on lean.

Angela Cacciotti (Optus College)

Optus has through the Australian Graduate School of Management deployed Six Sigma to build organisational capability through operational excellence.

Six Sigma is a rigorous, focused and highly cost effective approach to achieving improved business performance. Successful Six Sigma projects result in reduced defects, reduced cycle times, lower inventory levels, reduced waste, increased sales, less re-work, reduced downtime and increased productivity. In small to medium organisations Six Sigma projects are expected to return a minimum of \$250,000 in annual savings to the bottom line.²

This methodology is being used to bring about a transformation across all areas of the business from operations to service, a whole of organisation approach.

Currently there is no link to qualifications but feels there would be no harm and for those currently studying or thinking about studying may be an incentive if activities undertaken under the Six Sigma transformation could form part of the evidence for either RPL or units of competency.

Education Industry Focus Group (convened by Victorian Tafe Association)

(Juris Lieberts, Manager Centre for New Manufacturing, Swinburne University of Technology; Tony Ellul, Industry Consultant Engineering & Lean Competitive Manufacturing, Technical and Trades Innovation, Victoria University; Peter Schreiner, Head of Dept engineering and Automotive, University of Ballarat; Robert Rossiter, Program Manager Science, Mining and Manufacturing and Lucy De Vreede, Bendigo Regional Institute of Tafe; Sally Denning, Senior Project Manager, Tafe Development Centre)

General Discussion points

- some difficulties with the Competitive Manufacturing Package as students can complete without developing an understanding of lean thinking
- if industry don't understand it they won't embrace it, need to see the benefits on Return on Investment
- it is about small incremental changes leading to a new culture
- consideration to how it is sold to industry
- lean pilot projects introduce gains e.g. continuous improvement, respect for people, customer service
- can be applied to service sector successfully

Suggestions

1. Embed into core units e.g. OHS, quality and sustainability, possibly employability skills. If only an elective people will not select.
2. Suggest that IBSA approach MSA to consider redeveloping the Competitive Manufacturing qualifications to be more generic in title and content so they can be used for all industry sectors.
3. Offer as a core unit in TAA Cert IV and Diploma qualifications, link to sustainability by introducing Lean tools – new generation trainers will embrace
4. Professional development required for RTOs

Alex Fraser, EPICTAB

² <http://www.asb.unsw.edu.au/executive/programs/Pages/sixsigma.aspx>

Suggested that lean thinking was relevant to everyone and should be introduced as early as possible so it becomes a way of life and approaching tasks, not just something undertaken at work as a tool to achieve.

Doesn't support stand alone units. Suggested embedding into core units from Cert I through to Vocational Graduate Diplomas to support a way of thinking. Include in elements and range statements and incorporate into assessment.

Geoff Thomas, Caryl Hertz and Steve (RMIT)

Proposed the need for a new qualification from Cert II to Advanced Diploma in Sustainability and Lean in the Business Services Training Package. Felt strongly that there will be an increase in demand for these skills in the future creating both demand and opportunity for a career path for future professionals who will be required by industry.

Over time it is expected that compliance with energy efficiencies, water consumption, use, re-use and disposal of wastes will become mandatory and so the associated skills and knowledge to undertake the planning, doing and completing will be required. This will require experts to assist industry e.g. parallels with the introduction of Occupational Health and Safety were drawn.

Currently working on the development of training at Cert III and IV and planning for Diplomas by selecting units from the Competitive Manufacturing for application to non manufacturing sectors.

Jules Adam, VTS

Reinforced the message that employees like qualifications, but this is not such an important driver for business which is seeking capability through skills and knowledge. Saw lean skills as relevant to all business including small and micro businesses.

Settled on embedding lean thinking into Business Services Training Package core units through elements not just range statements to ensure they are incorporated into the delivery and assessed. Proposed a full qualification at Cert IV to provide depth for those seeking this and also provides electives which could be taken up in other packages depending on the packaging rules. Suggested skill sets might be an option for managers which could be drawn from the Cert IV units. For the TAA package, lean thinking could be built into the continuous improvement units by embedding into elements.

Identified some concerns with the success of lean thinking implementation when just delivered through training and drew comparisons to sustainability. Felt quite strongly that leaving this to RTOs will not deliver the changes being sought and that they require professional development and resources such as case studies and training delivery materials to ensure and enable them to deliver lean thinking concepts and tools.

Jill Shipley, Phoenix Business College

Felt that for the Financial Services package the Cert II and Cert III were about fundamentals and so lean thinking and skills would be most relevant at Cert IV where the work moves into processes, job costing and audit trails. Identified challenges in teaching these concepts in a class room environment to school leavers aspiring to work, rather than for those already in work.

For the Business Services package saw opportunity to introduce from Cert II by embedding in elements of appropriate units. Suggested a new qualification at Cert IV and Diploma may provide recognition and generate interest and then over time embed. Units in these qualifications could then be taken in the FS and TAA packages.

Strongly supported the need for resource materials consisting of:

1. comprehensive content in the form of reference materials like a manual to allow RTOs to develop their own curriculum delivery materials, particularly if self paced training is used; and
2. professional development sessions offered multiple times to allow small RTOs to send trainers one at a time and at a variety of times e.g. afternoons and late evenings.

Rob Graham, ETAS

Saw a strong link to continuous improvement and the opportunity this would provide to add to the range and elements by including lean thinking. Raised some questions around the language of lean and whether its focus was on lean office.

Wondered if the principles were worthy of being a core unit that links ethical, professional, sustainability and lean as a whole approach to work.

Conclusion resulted in “lean office” should be an elective unit. If introduced as a holistic package covering lean thinking, sustainability, green and innovation offer as a core unit e.g. parallels with OH&S. Saw future possibilities for a whole qualification at Cert IV and higher to develop future specialists which become more in demand with more government regulations and compliance.

Arnold Wong, Landgate

Saw ICT as an enabler for business and industry by providing access to information to assist in decision making and the delivery of products and services. Saw a strong link to the customer service loop which he felt was not strongly aligned with ICT who call their customers “users”.

Saw strong value in the introduction and adoption of lean thinking into curriculum to assist in preparing students for how to approach their work to best use their competent technology skill base.

Emphasised the need for educators to use the principles of lean thinking in how they deliver training, e.g. Continuous improvement, understanding the client needs and getting feedback, streamlining processes to eliminate and reduce waste. The learning experience should reflect lean thinking.

Paul Nieuwhof, Printing Industries Association of Australia

Advised that ATS are currently delivering lean skills through the Competitive Manufacturing qualification and expecting up to 6 printers to be participating.

Raised a number of general concerns regarding training:

- industry moves quickly, training reform takes a long time and so there are lags
- apprentice training is narrow and doesn't provide a broad range of learning experiences providing a good pool of trades people for industry to select from
- private RTOs don't provide the reliability that TAFE can but TAFE does not deliver training that meets the needs of industry in terms of content, delivery methodology, location and timing.

Acknowledges there is some overlap between sustainability and lean thinking but also feel there are some significant differences e.g. sustainability has social, environmental and economic elements, lean is about productivity through minimising inputs and maximising outputs.

Supports the embedding of lean skills to provide long term benefits and bring about attitudinal change.

Sharon Ross

Forwarded a survey but also felt strongly that this work should align with the COAG reform agenda for vocational education and the National VET Sector Sustainability Policy and Action Plan (2009-2012).

Raise some concern that avenues for consultation are not used to advantage e.g. recent review of TAA package.

Jeremy Trott, Training Service Australia

Questioned who was driving this activity, industry or vocational education providers.

As successful implementation of lean skills requires strong organisational support, value of introducing to core units was questioned. RTOs have pressure to fill the gaps where industry/business does not provide the work experiences required.

Raised the matter that learner centred training being encouraged, how does lean skills line up.

Abbey Chasen, HBF

HBF is an enterprise RTO but only delivers two units of the Financial Services Training Qualifications currently and outsources the delivery of BSB qualifications, Cert III in Customer Services and Cert IV in Frontline Management but use their own Workplace Assessors. HBF is promoting a “working for performance” culture in the workplace.

See best returns for lean skills in blue collar work which is highly process driven, unlike white collar which is often more service driven. Suggested to be included at a core unit in training packages where there is direct relevance.

Envisage outsourcing Cert III in Customer Service and Cert IV in Frontline Management in 2010. Their strategic direction overall is to map training programs back to training package outcomes.

“I found your paper interesting and will be sharing some of the principles well presented in layman terms to our team. I however do not feel that I have sufficient knowledge of the training packages and as indicated the limited use in our organisation, to respond to the specific questions in the questionnaire. I do however feel that having read your paper, there is clearly opportunity in the service industries to apply some of the LEAN, these may just not be as obvious as in the manufacturing industries. I see merit for inclusion in the first instance in some of the leadership modules and probably at Cert IV or diploma level in the Business Services areas.”

Lawry Hill, Tafe, Cultural and Creative Industries

Can currently import from Business Services if required, and so if Lean skills was incorporated into Business Services qualifications could be assessed.

Raised some concerns that the higher the qualification the more managerial skills are added often at the expense of technical skills and indicated this had been raised a number of times previously. Added that by including new concepts something had to go or the packaging rules needed changing.

Teaching in the workplace and teaching in an institution whilst having much in common also provide very different experiences. This needs to be considered when introducing new concepts e.g. lean skills, to ensure they can be presented well in all settings.

Suggested that the Vocational Graduate Certificate and Vocational Graduate Diploma might provide a vehicle for lean skills as they deal with process control and improving efficiencies.

Sheevan Gallacher, Aspire Performance Training

Already does a lot of work around lean tools including Six Sigma for mining, building, retail and LGA mainly around the theme of Continuous Improvement. Where client seeks an accredited qualification, maps delivery to BSBMGT516A and BSBMGT403A and provides Certificates of Attainment.

Generally clients interested in improving or reforming culture through professional development and organisational change not qualifications and so this is not a driver.

Felt that skill sets around lean may be of value to industry. RTOs can be creative with what they offer and how they offer the training and where required map to qualifications.

Simon Peppercorn, Printing Industries Association of Australia
Carlo Lauricella, Applied Training Services (ATS)
Wayne McDougall, Skilled Workforce

The Printing Industry Association runs a unique program called Lean and Green that expands on the traditional principals of Lean Manufacturing (eliminating non-value adding time, labor and capital) and targets the root causes of energy wasteful practices while providing a framework for achieving specific, measureable business and environmental goals. It provides printing organisations with much needed productivity enhancement as well as directly supporting the implementation of the Sustainable Green Print (SGP) environmental management Systems putting them onto a manageable pathway to ISO.

They currently deliver this training under the Competitive Manufacturing Qualification or the Process Manufacturing Qualification to access government training incentives for employers.

Printing industry not well known for providing post trade training and much of the training is now moving away from a “craft” to a process. Interest in Lean and Green is high and demand continues to grow. Some barriers include introducing into the office and support areas and perception it is for manufacturers.

Keen to see the Competitive Manufacturing qualifications and incorporated units to reviewed to de-emphasise “manufacturing” context so the qualifications and units and be delivered more broadly to other industries. Also keen to see integration between clean, green and sustainability and linked to continuous improvement and innovation.

Bob Paton, Manufacturing Skills Australia

The need for training in lean skills arose from the movement to augment technical skills with skills in process and the desire to embed lean into the public training system. This movement occurred prior to the establishment of National Industry Skills Councils.

It was established and delivery was anticipated as a post technical qualification. In other words, the target audience was workers with a technical qualification who were looking for skills to enhance the ways they undertook their work by looking at a whole of organization approach to work output.

Competitive Manufacturing qualifications, Cert III and Cert IV have the highest interest and this is linked to funding and the nature of the qualification which is not aimed at secondary schools or entry level workers.

MSA plans to review the Competitive Manufacturing during 2010 and streamline and remove the focus on a manufacturing environment so the qualifications and units can have wider appeal and take up by other industries and in other packages as electives. MSA is happy to involve IBSA staff in this review.

Lindsay Ryan

Advised he was working with the Kaizen Institute.

Advised that UniSA were strong supporters of Lean Thinking and had been working with Prof Peter Hines from Lean Enterprise Research Centre at Cardiff University and offer courses on “Principles of Lean Thinking” and “Lean leadership”. Successful completion of the course leads to credit in the MBA program.

Believe that business is looking for Return on Investment while staff are interested in nationally recognised qualifications that provide portability.

Richard Jenkins

Provided background to the development of the Competitive Manufacturing training qualifications and the planned review by MSA. Provided two main reasons for the review being, the interest and adoption of lean skills in non-manufacturing sectors and the need to reinforce the value chain concepts in the qualifications.

Indicated that over 90% of enrolments were at Cert IV.

Supported the value of MSA and IBSA cooperating in recommendation 1 and that MSA was most keen to ensure that lean skills was provided effectively across the value chain.

Appendix E Survey Results

Survey Response - Jeremy Trott

Business Services

Education

<p>1. Please list the available units appropriate to lean in the office? (see Appendices A and B)</p> <p>BSBFLM309C – Support continuous improvement systems and processes BSBMGT403A – Implement continuous improvement BSBMGT516A – Facilitate continuous improvement BSBMGT608B – Manage innovation and continuous improvement BSBINN201A, BSBINN301A, BSBINN501A, BSBINN502A, BSBINN801A</p> <p><i>Note: I believe BSBFLM309C, BSBMGT403A and BSBMGT516A could be rewritten, not just to incorporate lean, but also to make them less confusing. Note also that these units are applied across a broad range of industries so could be used to promote lean in a range of environments, not just the office.</i></p> <p>The discussion paper also mentions sustainability. Units which could be investigated for linking lean and sustainability might include: BSBSUS201A, BSBSUS301A, BSBSUS501A</p>
<p>2. Should current Lean units be included as core units in all or selected IBSA qualifications? YES/NO</p> <p>No – electives only at the present time. I believe that there would be too many people that would struggle with the units if they were made core, particularly if their organisation is not using the lean philosophy. This also places pressure on RTO's to 'water down' the delivery and assessment of the units to meet client needs. Consideration could be given to developing new qualifications based around lean skills in which lean units are included in the core.</p>
<p>3. If yes, please list which IBSA qualifications you refer to. Nil</p>
<p>4. Are industry specific Lean skills required as core competencies? UNSURE</p>
<p>5. If yes, list the industries that require specific Lean Skills as core competencies. Perhaps there are some job roles for which it could be reasonable to make lean skills (and sustainability) core competencies. For example, Manager of Health, Safety and Environment; Manager of Environment and Sustainability, etc.</p>
<p>6. Are additional units required to address gaps to support required skills and knowledge? UNSURE</p>
<p>7. If yes, what are the skill and knowledge gaps?</p>
<p>8. If you answered yes to questions 1, 3 or 5, are additional support materials required? YES</p>
<p>9. What sort of support materials do you suggest?</p> <p>I am concerned that this initiative is being driven by the government rather than by industry. If this is correct, there is likely to be a lack of knowledge in industry about how best to implement training and assessment of lean skills. It would follow that required support materials may include:</p> <ul style="list-style-type: none"> - Training materials (e.g., manuals) - Assessment materials (well developed assessment tools & tasks) - Professional development information for trainers and assessors in this area
<p>10. Should skills sets be created around Lean in the office skills? NO</p>
<p>11. If yes, please elaborate.</p>

I don't think this is necessary at the present time.

12. Are Lean in the office Skills appropriate for micro and small businesses? UNSURE; perhaps it would be useful to provide some elective options??

13. Is there a need to embed Lean Skills within existing qualifications and units of competency? UNSURE, however if this is done, they would need to be embedded carefully with thought as to how training and assessment would occur, and what evidence candidates would need to provide to demonstrate competency. Sometimes things seem to be embedded poorly in units and it is left up to the trainer / assessor to figure out why they are there and what we are supposed to do with them.

Other Comments

I see the incorporation of lean skills and sustainability as more appropriate for the Business Services Training Package than the TAA Training Package.

Survey Response – Anna Henderson

Business Services

Education

Information and Communications Technologies

Cultural and Creative Industries

Financial Services

Printing and Graphic Arts

1. Please list the available units appropriate to lean in the office? (see Appendices A and B)

Most units can be contextualized to incorporate lean principles. In addition to the units listed in Appendices A and B the following are examples of units that can be used to incorporate lean principles:

BSBSUS201A	Participate in environmentally sustainable work practices
BSBINN201A	Contribute to workplace innovation
BSBINN301A	Promote innovation in a team environment
BSBITU306A	Design and produce business documents
BSBITU303A	Design and produce text documents
BSBPRO301A	Recommend products and services
BSBSUS301A	Implement and monitor environmentally sustainable work practices
BSBWOR301A	Organise personal work priorities and development
BSBCUS401A	Coordinate implementation of customer service strategies
BSBITS401A	Maintain business technology
BSBRSK401A	Identify risk and apply risk management processes
BSBPMG510A	Manage projects
BSBSUS501A	Develop workplace policy and procedures for sustainability
FNSICCUS301B	Respond to customer enquiries
FNSASIC301B	Establish client relationship and analyse needs
FNSASIC302B	Develop, present and negotiate client solutions
FNSICIND401B	Apply principles of professional practice to work in the financial services industry
FNSICSAM301B	Identify opportunities for cross selling products and services
FNSICGEN402A	Participate in negotiations
FNSICGEN403A	Collect, assess and use information
FNSICORG401A	Contribute to resource planning
FNSICORG402A	Work with specialist and outsourced services
FNSICPRO403A	Tailor a product/service to meet customer needs

2. Should current Lean units be included as core units in all or selected IBSA qualifications? **NO**

Core units need to be appropriate for qualification Most units can be contextualized to incorporate lean principles.

3. If yes, please list which IBSA qualifications you refer to.
4. Are industry specific Lean skills required as core competencies? NO Core units need to appropriate for qualification Most BSB07 units can be contextualized to incorporate lean principles.
5. If yes, list the industries that require specific Lean Skills as core competencies.
6. Are additional units required to address gaps to support required skills and knowledge? NO
7. If yes, what are the skill and knowledge gaps?
8. If you answered yes to questions 1, 3 or 5, are additional support materials required? YES/NO
9. What sort of support materials do you suggest? Combine Lean support material with environmental/sustainability support material
10. Should skills sets be created around Lean in the office skills? YES
11. If yes, please elaborate. Combine lean with environmental/sustainability units
12. Are Lean in the office Skills appropriate for micro and small businesses? YES
13. Is there a need to embed Lean Skills within existing qualifications and units of competency? When reviews are conducted Lean Skills can be considered for incorporation but incorporating Lean Skills should not be an exercise in its own right.
Other Comments This project should not be conducted in isolation – there needs to be an integrated approach to sustainability and lean and in all cases these principles need to be relevant to the unit and qualification.

Survey Response - Andrea Smith, Skills Development Officer, Creative Industries Skills Council, Queensland

Business Services

Education

Information and Communications Technologies

Cultural and Creative Industries

Financial Services

Printing and Graphic Arts

1. Please list the available units appropriate to lean in the office? (see Appendices A and B)
BSBFLM309A Support continuous improvement systems and processes
BSBFLM309B Support continuous improvement systems and processes
BSBFLM409A Implement continuous improvement
BSBFLM409B Implement continuous improvement
BSBFLM509A Promote continuous improvement
BSBFLM509B Facilitate continuous improvement
BSBMGT608A Manage innovation and continuous improvement
BSBFLM309C Support continuous improvement systems and processes
BSBMGT403A Implement continuous improvement
BSBMGT516A Facilitate continuous improvement
BSBMGT608B Manage innovation and continuous improvement
BSBEBUS408A Implement and monitor delivery of quality customer service online
BSBMGT501A Market services and concepts to internal customers
BSBMGT505A Ensure a safe workplace
BSBPM404A Apply quality management techniques
BSBEDU502A Manage international education issues and incidents

BSBPMG404A Apply quality management techniques MSACMT631A Undertake value analysis of product costs in terms of customer requirements MSACMT630A Optimise cost of product MSACMG700A Review continuous improvement processes MSACMG701A Prepare for and implement change AUM3023A Reduce waste in work processes ☒
2. Should current Lean units be included as core units in all or selected IBSA qualifications? YES/NO The units listed above are probably not appropriate. See question 5
3. If yes, please list which IBSA qualifications you refer to.
4. Are industry specific Lean skills required as core competencies? YES may be useful
5. If yes, list the industries that require specific Lean Skills as core competencies. Specific units that cover three areas: lean, environmental and sustainable competencies needs to be written to cover the training packages in IBSA's scope – however there needs to be <u>ONE</u> unit per qualification level that covers all three areas. In Cert I & II the unit needs to be Follow lean, environmental and sustainable..... In Cert III & IV the unit needs to be Implement lean, environmental and sustainable..... In Diploma and Advanced Diploma the unit needs to be Create lean, environmental and sustainable.....
6. Are additional units required to address gaps to support required skills and knowledge? YES/NO Trainers should be free to choose from units you have listed as electives if they wish, if the training package guidelines allow.
7. If yes, what are the skill and knowledge gaps?
8. If you answered yes to questions 1, 3 or 5, are additional support materials required? YES/NO
9. What sort of support materials do you suggest? Online toolbox, Trainer & assessor guide, Student textbooks, Assessment examples
10. Should skills sets be created around Lean in the office skills? YES/NO Not at this stage
11. If yes, please elaborate.
12. Are Lean in the office Skills appropriate for micro and small businesses? YES/NO They are important for every business.
13. Is there a need to embed Lean Skills within existing qualifications and units of competency? YES/NO This could be a strategy that will allow for holistic assessment and for trainers to see practical application of these skills.
Other Comments Lean, environmental and sustainable skills could be implemented into training packages as a ninth set of Employability Skills

Survey Response: TAFE NSW Training and Education Support, Industry Skills Unit, Ultimo

1. Please list the available units appropriate to lean in the office? (see Appendices A and B) ...Not possible to provide this advice as industry consultation and research is required to be conducted by Training Package developers
2. Should current Lean units be included as core units in all or selected IBSA qualifications? YES/NO Not possible to clearly answer yes or no as there are a couple of relevant views: View

<p>1: Lean skills should be included in the core of all IBSA qualifications, as follows: Discreet lean skills units which are relevant to the particular qualification &/OR Embedded (both implicitly and explicitly) into core units e.g. as elements/performance criteria, as knowledge and skills, and into the Range Statement and Evidence Guide sections View 2: Newly developed Lean skills units should be included as core units in: All IBSA qualifications OR Selected IBSA qualifications</p>
<p>3. If yes, please list which IBSA qualifications you refer to. See comments re question #3. Not possible to provide this advice as industry consultation and research is required to be conducted by Training Package developers</p>
<p>4. Are industry specific Lean skills required as core competencies? YES/NO Not possible to answer yes or no to this question. The decision to include these skills as a core competency will depend upon the industry sector. The current definition of Lean Skills in the paper limits the view on “Lean Skills” and so it would be difficult to develop appropriate units of competency. There is a tension between Lean Skills as: generic competencies (e.g. employability skills are also generic)OR specific/discreet functions/job/skills, Further exploration of whether Lean Skills are generic or specific technical industry skills needs to occur before a clear response can be provided. Also the decision regarding this would need to be decided on a qualification or case-by-case basis following relevant industry consultation.</p>
<p>5. If yes, list the industries that require specific Lean Skills as core competencies...See comments re question #4</p>
<p>6. Are additional units required to address gaps to support required skills and knowledge? YES/NO...Probably – however research with industry to identify the gaps would need to occur</p>
<p>7. If yes, what are the skill and knowledge gaps?...See comments re question #6</p>
<p>8. If you answered yes to questions 1, 3 or 5, are additional support materials required? YES/NO</p>
<p>9. What sort of support materials do you suggest?...Qualification guidelines, Unit of competency guidelines, Assessment guidelines, Professional development resources: To support delivery, for skill development of trainers and assessors, Contextualization advice, teaching resources e.g. PowerPoint presentations etc.</p>
<p>10. Should skills sets be created around Lean in the office skills? YES/NO</p>
<p>11. If yes, please elaborate...As per industry consultation – to address specific needs for enterprises and industry context</p>
<p>12. Are Lean in the office Skills appropriate for micro and small businesses? YES/NO</p>
<p>13. Is there a need to embed Lean Skills within existing qualifications and units of competency? YES/NO as a generic skill – therefore the following need to be developed and/or included: Discreet units of competency, Embedded into existing units of competency</p>
<p>Other Comments: The paper didn’t demonstrate sufficient depth of analysis or research to inform responses or discussion: No reference provided to key Lean Skills website: http://www.superfactory.com/, Definition of Lean Skills (p4 of paper) – not referenced and doesn’t reflect components as outlined further in paper. The concept whilst still relevant, is “out-of-date” due to the current emergence of “sustainability” and “green” skills. Lean skills are a sub-set of sustainability. Lean Skills is a holistic concept i.e. an approach (not necessarily discreet skills), as are employability skills, Mayer Key competencies etc – paper indicates a leaning to respond in an atomistic/drop-in approach. See question #13 for the two approaches required</p>

Survey Responses provided by Dr Sharon Ross and Teresa O'Brien (C.Y.O'Connor College of TAFE, WA)

Business Services

Cultural and Creative Industries

Education

Financial Services

Information and Communications Technologies

Printing and Graphic Arts

1. Please list the available units appropriate to lean in the office? (see Appendices A and B)

Cert IV in TAA

BSBSUS301A Implement and monitor environmentally sustainable work practices as a possible elective for Cert IV in TAA

and/or

Embed Lean skills from the BSB07 Sustainability and Continuous Improvement units in DES and DEL units in Cert. IV in TAA.

Diploma of TAA

BSBSUS501A Develop workplace policy and procedures for sustainability and/or choose from BSBMGT and BSBFLM Sustainability and Continuous Improvement units for possible electives for inclusion in Dip of TAA.

and/or

Embed Lean skills in TAAENV501B unit by introducing another Element focusing on Lean Skills.

Embed Lean skills in units in DES, DEL, CMQ and TAS fields.

2. Should current Lean units be included as core units in all or selected IBSA qualifications? YES/NO

Difficult to provide a simple 'Yes' or 'No' response. Reasoning behind this is provided in response to Q. 3.

3. If yes, please list which IBSA qualifications you refer to.

The extent of uptake of sustainability principles varies across states and territories. Within the VET sector in WA there are significant differences in levels of awareness across public and private RTOs. In the WA TAFE context there is considerable awareness/implementation of action plans, for the most part at the strategic level.

For the VET practitioner, the inclusion of Lean skills may be viewed as the addition of yet another layer of complexity to VET practice. As a precursor to inclusion of Lean skills in units of competency, extensive professional development is required, especially for VET practitioners at the coalface. There is also the need to build expertise within TAFE colleges to ensure Lean skills are integrated into the corporate knowledge base.

However, some arguments for the inclusion of Lean units as core units may be advanced within the context of contemporary discourses for sustainability development both in the international and national arena.

- The concepts of 'sustainability', 'green skills' and 'Lean skills' are increasingly prominent in Government policy and linked with government initiatives.
- Specifically in the VET sector the National VET Sector Sustainability Policy and Action Plan 2009 – 2012 provides the impetus for inclusion of Lean skills as core units.
- Continuous improvement is explicitly stated in Standard I and II of the AQTF.
- Given the *entry-level* nomenclature that IBSA has ascribed to the Cert. IV in TAA then there is strong argument to make Lean skills integral to the Cert IV in TAA for these reasons:

- It may be argued that this pivotal qualification (Cert IV TAA) which underpins VET professional practice across all industry areas should have a specific focus on Lean skills in order to develop trainers and assessors to be more effective in Lean environments.
- With the inclusion of Sustainability units in new and recently updated Training Packages there is a need to adequately address the knowledge/skills needs of those VET practitioners operating in contexts where Lean skills are given increasing prominence.

Other options to consider:

The embedding of Lean skills in performance of criteria of Elements (as with Employability Skills).

Embed Lean skills into Employability Skills summary that overarches each qualification.

Consider Lean skills as another facet of Employability Skills.

4. Are industry specific Lean skills required as core competencies? YES/NO
5. If yes, list the industries that require specific Lean Skills as core competencies. The structure of units in the Cert IV in TAA and Dip of TAA usually includes a 'Review' or 'Evaluate' Element which is the last Element in the unit of competency. This allows for Lean skills (through application of 'Kaizen' – continuous improvement principles) to be made more explicit. There is a need for clarity of understanding in terminology – i.e. Lean, Sustainability, Green skills. Lean skills application in DES402C and DEL units (TED10). Would need to include in Required Knowledge and Required Skills. Make Lean skills explicit in e-learning units in Diploma. TAATAS401C Maintain information requirements – make Lean skills explicit in performance criteria. Assessment suite of units could embed Lean Skills.
6. Are additional units required to address gaps to support required skills and knowledge? YES/NO
7. If yes, what are the skill and knowledge gaps? Develop additional Element for selected units in Cert IV and Diploma around principles of Lean and strategic development and implementation.
8. If you answered yes to questions 1, 3 or 5, are additional support materials required? YES/NO
9. What sort of support materials do you suggest? Include as separate section in User Guide. Include in IBSA Learner Resources. Develop Lean Skills Resource Kit comprising of information, case studies, templates, mapping.
10. Should skills sets be created around Lean in the office skills? YES/NO
11. If yes, please elaborate.
12. Are Lean in the office Skills appropriate for micro and small businesses? YES/NO..... N/A
13. Is there a need to embed Lean Skills within existing qualifications and units of competency? YES/NO See response to Q 5
Other Comments While it is timely to consider embedding Lean skills as TED10 is currently under

development, there is a need to determine the extent to which TED10 will foreground the national VET agenda for sustainability – is this to be done through the inclusion of core units on Lean skills?

Survey Response – Greg Grace

Business Services

Cultural and Creative Industries

Education

Financial Services

Information and Communications Technologies

Printing and Graphic Arts

Printing and Graphic Arts ICP 05

<p>1. Please list the available units appropriate to lean in the office? (see Appendices A and B)</p> <p>Our package is currently being reviewed and it might possibly be too late to incorporate the valuable components of Lean, Smart Change Over and Operational Equipment Effectiveness.</p>
<p>2. Should current Lean units be included as core units in all or selected IBSA qualifications? YES</p>
<p>3. If yes, please list which IBSA qualifications you refer to.</p> <p>For the sake of Australia’s continued prosperity there is need for components of Lean and Smart Change Over in the scope of ICP 05</p>
<p>4. Are industry specific Lean skills required as core competencies? YES</p>
<p>5. If yes, list the industries that require specific Lean Skills as core competencies.</p> <p>In the graphic arts industry there is continued critical awareness of Lean Principles and the benefits of Smart Change Over and Operational Equipment Effectiveness (OEE). There is a strong movement into these principles by a growing number in the graphic communications industry</p>
<p>6. Are additional units required to address gaps to support required skills and knowledge? YES</p>
<p>7. If yes, what are the skill and knowledge gaps?</p> <p>Smart Change Over and OEE along with the associated measurement techniques</p>
<p>8. If you answered yes to questions 1, 3 or 5, are additional support materials required? YES/NO</p>
<p>9. What sort of support materials do you suggest?</p> <p>No I feel you have covered most to the critical points in your excellent summary</p>
<p>10. Should skills sets be created around Lean in the office skills? YES</p>
<p>11. If yes, please elaborate.</p> <p>There is scope to expand into all areas as pointed out in your summary above.</p>
<p>12. Are Lean in the office Skills appropriate for micro and small businesses? YES</p>
<p>13. Is there a need to embed Lean Skills within existing qualifications and units of competency? YES</p>
<p>Other Comments</p> <p>We have been through Quality Assurance (QA) and this feel on wasted ground. Lean and associated principles put the overall concept of QA in to a more useable package and organizations can see the benefits of continual improvements and reduced waste directly onto their bottom line.</p>

I would support the expansion of the lean concept into all sectors of IBSA packages

Survey Responses – Mark Devlin

Q1 None of these

Q2 No. A more selective approach should be employed.

Q4 Yes. I believe in doing so this would add more weight to the Lean message.

Q5 Education, Service in general, Healthcare, Retail.

Q6 At the moment, there is very little training support available in the areas listed in Q5. Many of the packages that are available struggle to make the content relevant for a non manufacturing environment. I believe there is a huge opportunity to develop packages that are relevant to these areas in a deeper context than some of the superficial materials that exist now, such as how to keep your filing cabinet in order.

Q9 Workshops that are easy to digest (short sharp, not 3 day marathons of information) Pathway document E.g.: How to get started, how to progress a Lean journey, training plans etc Q10 Yes

Q11 As mentioned in Q6- Deeper exploration of the Lean philosophy.

Q12 Yes

Q13 If only to validate the legitimacy of Lean, then yes.

Appendix F Focus Groups Discussion Outcomes

Scoping Lean Skills – Business Services (SA)

Questions for Discussion

Please **bold** your answer and elaborate as required.

<p>14. Please list the available units appropriate to lean in the office? (see Appendices A and B) <i>Units from the Competitive Manufacturing qualifications with adaptation for IBSA qualifications, in particular Business Services</i> <i>Embed lean into the range statements of the IBSA units and in where suitable offer lean units as electives</i> <i>Link to sustainability and innovation.</i> <i>Look at the postgraduate level qualifications in the Competitive Manufacturing package and introduce to the post graduate level qualifications in the IBSA packages, particularly Business Services.</i></p>
<p>15. Should current Lean units be included as core units in all or selected IBSA qualifications? YES/NO</p>
<p>16. If yes, please list which IBSA qualifications you refer to. <i>Raise awareness through all levels by embedding into units around sustainability, environment, change, innovation, management operations.</i></p>
<p>17. Are industry specific Lean skills required as core competencies? YES/NO</p>
<p>18. If yes, list the industries that require specific Lean Skills as core competencies. <i>Generic, allow RTO to tailor as and when required. This will allow support for organizations adopting lean skills into the operations but recognizes not all are ready or committed.</i></p>
<p>19. Are additional units required to address gaps to support required skills and knowledge? YES/NO</p>
<p>20. If yes, what are the skill and knowledge gaps?</p>
<p>21. If you answered yes to questions 1, 3 or 5, are additional support materials required? YES/NO</p>
<p>22. What sort of support materials do you suggest? <i>User Guide adapted from the MSA User Guide on Lean Skills, needs to include case studies with relevant applications, examples of how to apply assessment.</i></p>
<p>23. Should skills sets be created around Lean in the office skills? YES/NO</p>
<p>24. If yes, please elaborate. <i>Cert III in BS – Lean Processes</i> <i>Cert IV in BS – Lean Management</i></p>
<p>25. Are Lean in the office Skills appropriate for micro and small businesses? YES/NO <i>Appropriate for all and may be simpler at the micro and start up levels.</i></p>
<p>26. Is there a need to embed Lean Skills within existing qualifications and units of competency? YES/NO</p>
<p>Other Comments <i>Could become skills set specialisation in the future.</i></p>

Scoping Lean Skills – Cultural and Creative Industries

Questions for Discussion

Business Services

Education

Information and Communications Technologies

Cultural and Creative Industries

Financial Services

Printing and Graphic Arts

<p>1. Please list the available units appropriate to lean in the office? (see Appendices A and B) <i>For most artists, valuable to a small component of what they need to do where their work is commercial, but not directly relevant where it is artistic and creative.</i> <i>Many of the characteristics of lean are implicitly part of art, continuous improvement and innovation.</i></p>
<p>2. Should current Lean units be included as core units in all or selected IBSA qualifications? YES/NO</p>
<p>3. If yes, please list which IBSA qualifications you refer to. <i>Where the commercial interface occurs with careful interpretation of the language to ensure relevance.</i></p>
<p>4. Are industry specific Lean skills required as core competencies? YES/NO</p>
<p>5. If yes, list the industries that require specific Lean Skills as core competencies. <i>Could be for creative industries and in business modules in arts packages.</i></p>
<p>6. Are additional units required to address gaps to support required skills and knowledge? YES/NO</p>
<p>7. If yes, what are the skill and knowledge gaps? <i>Philosophy based module around who are we, why are we lean, impact of specialisation.</i></p>
<p>8. If you answered yes to questions 1, 3 or 5, are additional support materials required? YES/NO</p>
<p>9. What sort of support materials do you suggest? <i>Resources and reading to support concepts. Case studies with relevance. Hands on workshops e.g. mapping.</i></p>
<p>10. Should skills sets be created around Lean in the office skills? YES/NO</p>
<p>11. If yes, please elaborate.</p>
<p>12. Are Lean in the office Skills appropriate for micro and small businesses? YES/NO</p>
<p>13. Is there a need to embed Lean Skills within existing qualifications and units of competency? YES/NO</p>
<p>Other Comments <i>As an often non-commercial activity, explicit need for lean not really there. At the same time arts and culture is linked to innovation and creativity, characteristics sought and encouraged by lean principles. Customer service focus not intrinsic to much of art and culture to customer value concept not important.</i></p>

Scoping Lean Skills – Education Services (SA)

Questions for Discussion

Business Services

Cultural and Creative Industries

Education

Financial Services

Information and Communications Technologies

Printing and Graphic Arts

<p>1. Please list the available units appropriate to lean in the office? (see Appendices A and B) <i>Create a new core unit for the ES training package that encompasses the concepts of lean, sustainability, continuous improvement and change and link to productivity.</i> <i>At a later stage embed in all other units as appropriate the concepts of continuous improvement, sustainability, green skills and change.</i></p>
<p>2. Should current Lean units be included as core units in all or selected IBSA qualifications? YES/NO</p>
<p>3. If yes, please list which IBSA qualifications you refer to. <i>A new core unit at Cert IV as it is a pre-requisite to the Diploma at first, later embed in other units.</i> <i>Ensure any embedding is in the language of the elements, not just the range statements where they can be more widely interpreted and possibly omitted. If incorporated into the elements they can be assessment.</i></p>
<p>4. Are industry specific Lean skills required as core competencies? YES/NO</p>
<p>5. If yes, list the industries that require specific Lean Skills as core competencies. <i>The Education Services is utilised in across all industries and strongly linked to continuous improvement, quality, process improvement and sustainability. These concepts are both broadly and explicitly applied across many packages and industries.</i></p>
<p>6. Are additional units required to address gaps to support required skills and knowledge? YES/NO</p>
<p>7. If yes, what are the skill and knowledge gaps?</p>
<p>8. If you answered yes to questions 1, 3 or 5, are additional support materials required? YES/NO</p>
<p>9. What sort of support materials do you suggest? <i>User Guides with examples of applications in different industries of continuous improvements, value mapping, etc</i> <i>Professional Development for VET practitioners, particularly if a core.</i> <i>Don't call lean, call Continuous Improvement, or term not linked directly to manufacturing.</i></p>
<p>10. Should skills sets be created around Lean in the office skills? YES/NO</p>
<p>11. If yes, please elaborate.</p>
<p>12. Are Lean in the office Skills appropriate for micro and small businesses? YES/NO</p>
<p>13. Is there a need to embed Lean Skills within existing qualifications and units of competency? YES/NO</p>
<p>Other Comments <i>Make a new core for the Cert IV and embed into the core units at the Diploma level</i> <i>Business Services group felt the focus should be at the Diploma level and avoid the Cert IV with a focus on embedding into assessment skills rather than introducing lean skills.</i></p>

Scoping Lean Skills – Financial Services

Questions for Discussion

Business Services

Education

Information and Communications Technologies

Cultural and Creative Industries

Financial Services

Printing and Graphic Arts

<p>1. Please list the available units appropriate to lean in the office? (see Appendices A and B) <i>Some BS units used as electives in the higher qualifications. If embedded in BS will be available to FS students.</i></p>
<p>2. Should current Lean units be included as core units in all or selected IBSA qualifications? YES/NO</p>
<p>3. If yes, please list which IBSA qualifications you refer to. <i>Not core units but rather embed into existing units around business performance, efficiency, continuous improvement, best practice, standardisation, innovation and change. At Cert II and III, more about office functions, rather than operations and management.</i></p>
<p>4. Are industry specific Lean skills required as core competencies? YES/NO</p>
<p>5. If yes, list the industries that require specific Lean Skills as core competencies. <i>Not specific to industries but rather link to best practice. At Cert IV, financial data is used to identify inefficiencies, waste and manage stock control all associated with lean, so try and link.</i></p>
<p>6. Are additional units required to address gaps to support required skills and knowledge? YES/NO</p>
<p>7. If yes, what are the skill and knowledge gaps? <i>Could be linked to OH&S e.g. 5S and continuous improvement.</i></p>
<p>8. If you answered yes to questions 1, 3 or 5, are additional support materials required? YES/NO</p>
<p>9. What sort of support materials do you suggest? <i>Need activities and demonstrations. Ensure range statements go far enough to incorporate the concepts Relevant Case Studies and User Guide on Lean Skills Professional development for the Trainers.</i></p>
<p>10. Should skills sets be created around Lean in the office skills? YES/NO</p>
<p>11. If yes, please elaborate. <i>Could introduce skill sets of 2-3 units at different levels, e.g. Cert II and Cert III. Embed in Diploma and higher qualifications.</i></p>
<p>12. Are Lean in the office Skills appropriate for micro and small businesses? YES/NO <i>Only if they want to.</i></p>
<p>13. Is there a need to embed Lean Skills within existing qualifications and units of competency? YES/NO</p>
<p>Other Comments <i>Much of this package is about training around compliance and legislation, not customer service and so the relevance of lean is more tenuous and needs to be well thought out when introduced.</i></p>

Scoping Lean Skills - ICT

Questions for Discussion

<p>1. Please list the available units appropriate to lean in the office? (see Appendices A and B) <i>Many of the units from the Competitive Manufacturing package could be adapted for the ICT qualifications.</i></p>
<p>2. Should current Lean units be included as core units in all or selected IBSA qualifications? YES/NO</p>
<p>3. If yes, please list which IBSA qualifications you refer to. <i>Examine each unit and each qualification level to look for how to embed into the range and elements at Cert II, Cert III and Cert IV. It may not be appropriate to embed in all units so individual examination and consideration is required.</i> <i>Link to innovation, sustainability (both business and practices)</i> <i>At the Diploma develop a new unit linking innovation, sustainability, lean and continuous improvement and link to Business Analysis and Systems Analysis.</i></p>
<p>4. Are industry specific Lean skills required as core competencies? YES/NO</p>
<p>5. If yes, list the industries that require specific Lean Skills as core competencies. 5S for data and information quality management.</p>
<p>6. Are additional units required to address gaps to support required skills and knowledge? YES/NO</p>
<p>7. If yes, what are the skill and knowledge gaps? Workload leveling and Flow are really necessary to optimise resource utilization. Visual Management in hardware support areas for physical materials and in all other areas to highlight the important elements of the messages being communicated, visual thinking and A3 reporting to cut down the size of reports produced (particularly from projects) and deliver information in a format readers can readily absorb, and demand and supply side management for supplier/ vendor flow and quality management,</p>
<p>8. If you answered yes to questions 1, 3 or 5, are additional support materials required? YES/NO</p>
<p>9. What sort of support materials do you suggest? <i>Resources for delivery, e.g. Work Books with detailed IT case studies, assessment examples and applications in different industries e.g. Health, finance etc</i> <i>Professional Development on lean for trainers.</i></p>
<p>10. Should skills sets be created around Lean in the office skills? YES/NO</p>
<p>11. If yes, please elaborate. 5S for data and information management. This is not IT specific and spans physical and well as electronic media. 5S on email is an excellent starting point that all can identify with.</p>
<p>12. Are Lean in the office Skills appropriate for micro and small businesses? YES/NO</p>
<p>13. Is there a need to embed Lean Skills within existing qualifications and units of competency? YES/NO</p>
<p>Other Comments <i>Package needs to be more flexible to allow for introduction of new methods and concepts as there is limited capacity to introduce new subjects.</i> <i>Some discussion around the benefit of Kaizen rather than Lean as it goes much further to involve the entire organization and the role of all staff. Lean offers tools, Kaizen offers tools plus people and is more powerful as adopted by Toyota.</i></p>

Appendix G Feedback on Recommendations

The following table provides unedited feedback on recommendations.

<p>Anna Henderson Business Skills Victoria</p>	<p>Thanks for keeping me in the loop</p>
<p>Rose Vallen AIMM CPMgr Manager Curriculum/Compliance Australian Institute of Management SA</p>	<p>Looks good to me Angela</p>
<p>Dr Lindsay Ryan Director Corporate Education Advisers Pty Ltd</p>	<p>Your recommendations seem fine.</p>
<p>David Foreman</p>	<p>I believe Recommendation Option 1 reflects my preferred position.</p>
<p>Pam McLeod Industry Relations Unit, Training Operations Branch Skills Victoria</p>	<p>Recommendation one aligns with the objectives of the Manufacturing Skills and Training Taskforce and their work in the area. Recommendation two would lead to duplication and a fragmented approach by ISC's.</p>
<p>Martha and Agnes Martha Henderson Manager Industry Team Industry Skills Unit, Ultimo TAFE NSW Training and Education Support</p>	<p>Recommendation Option 1 Overall this option is supported. It is important that units developed for import into other training packages are written in such a way that they have relevance to the paraprofessional industries covered by IBSA. There should be units suitable for import at each AQF level to ensure relevance at each qualification level. The concept of Resource Kits for VET practitioners including case studies or scenarios contextualized to IBSA aligned industries is supported. Collaboration between Industry Skills Councils is supported</p> <p>Recommendation Option 2 In the event that option 1 is not progressed this option is supported in principle. However it is preferred that rather than develop one generic unit a separate unit, addressing lean, innovation, sustainability and green at each AQF level be developed to ensure relevance at each qualification level.</p>
<p>Dr Sharon Ross Acting Principal Lecturer C.Y.O'Connor College of TAFE</p>	<p>Strongly endorse and support No.3 in Recommendations - Options 1 and 2. IBSA's role on the Steering Committee for review of the Competitive Manufacturing qualifications is critical for the lean skills units to be suitable to be imported and used as electives in IBSA Training Packages</p> <p>Support integration of this (that graduates of these qualifications demonstrate their knowledge and competence of lean skills, tools and philosophies linked to innovation, continuous improvement and sustainability) in the Competitive Manufacturing qualifications as it is both appropriate and relevant to the Training Package</p>

	<p>My response to Recommendation Option 1 (that the units offered within the qualifications are suitable to be imported <i>and used as electives in IBSA Training Packages</i>) is as follows: Efforts to streamline and encourage cross-industry cooperation are commendable. However, the lean skills unit/s developed for the Competitive Manufacturing qualifications would have to be sufficiently generic enough to be imported or used as an elective in other IBSA Training Packages.</p> <p>In response to Recommendation Option 2 (that <i>IBSA develops a generic unit suitable for all IBSA qualifications</i>) I would like to raise the following questions? Is this just one generic unit? Will one unit be adequate? At what AQF level?</p>
<p>Peter Canavan Education and Training Adviser Australian Industry Group</p>	<p>Thanks for the opportunity to comment on your draft recommendations. I have consulted with some of my colleagues and generally we like option 1. We think it's more likely that individual units would be imported into IBSA qualifications rather than people do whole CMI qualifications, but the idea of expanding the application of the qualifications to other industry sectors seems sound.</p> <p>The suggestion in option 2 that a generic unit could be developed to address lean, innovation, sustainability and green seems too ambitious. It could end up being so broad in its scope that it wouldn't cover any of these topics in much depth.</p>
<p>Rob Malcolm KAIZEN Institute Australia</p>	<p>I strongly agree with the third bullet of Option 1. I see Option 2 as a cop out.</p> <p>As I said in the workshop Lean (and Kaizen) are totally dependent on senior management understanding and full commitment. Even if the organization the student works in is not 'lean', having the knowledge will help them become more effective in their own lives may help them influence senior management over time. I see Kaizen philosophy and approach as being the cornerstone of business sustainability. There is a clear message to Australian business in all this; to quote J. Edwards Deming: "Change is not mandatory, neither is survival"</p> <p>I am keen to contribute to any future initiatives.</p>
<p>Nita Schultz Executive Officer CEO Council/Education Policy Consultant Victorian TAFE Association</p>	<p>I have been on leave and not had time to carefully read/comment on the information below but I have confidence in your consultation process. Thanks for including the Vic TAFE sector.</p>
<p>Leonie Cook DECS SA Govt</p>	<p>Did not comment on recommendation one but did on two as below.</p> <ol style="list-style-type: none"> 1. That IBSA develops a generic unit suitable for all IBSA qualifications and training packages (the generic unit should be available to be imported into any package that needs it, not only IBSA quals and TPs) that addresses lean, innovation,

	<p>sustainability and green guided by a Steering Committee/Working Group made up of industry representatives and an active VET practitioners for each Training Package representing jurisdictions around Australia.</p> <ol style="list-style-type: none"> 2. That IBSA undertakes a review to streamline all IBSA qualifications, commencing with Cert IVs and Diplomas to ensure a generic unit that addresses lean, innovation, sustainability and green can be used as an elective. (this is a checking process) 3. That IBSA develops support materials for its Training Packages to support the delivery of these generic units that include: STRONGLY COMMEND THE FOLLOWING: <ul style="list-style-type: none"> • Professional Development workshops on lean skills • A Resource Kit for VET practitioners including case studies providing examples of contextualising; templates; mapping; power point slides. • Teaching resources – learner workbooks and activities, assessment examples. <p>(This could be undertaken in conjunction with MSA based on their existing User Guide for competitive Manufacturing</p>
<p>Tarnya Cruikshank (phone discussion) Senior Adviser, Education and Training, Business SA</p>	<p>Initially supported recommendation 2 only as she felt concerned the Competitive Manufacturing qualifications may be compromised. Supports the streamlining of qualifications and also felt that the new packaging rules would well accommodate the undertaking of units as proposed in the recommendations.</p>

Appendix H Consultation Register

Name	Contact details	Consultation mode	Comments
Jules Adams	Vocational Training Services Training Manager	interview	Employees like qualifications, employers seek skills.
Peter Bernich	Government Skills Australia	interview	Unaware of any interest in lean skills and lean thinking at this time for GSA Training Packages
Angela Cacciotti	Optus	interview	Optus using Six Sigma, not linked to qualifications. Many staff with incomplete vocational qualifications but not important to career progress.
Peter Canavan	Australian Industry Group	interview	Whole of organisation support required, not all organisations embrace or support lean thinking so shouldn't be core
Abbey Chasen	HBF	interview	
Mark Devlin	Kangan Batman TAFE	survey	
John Firth	Victorian Curriculum & Assessment Authority	contact	
Alex Fraser	EPIC Industry Training Board	interview	See lean thinking as relevant to all but not be stand alone but rather embedded in all core units
Sheevan Gallacher	Aspire Performance Training	interview	Is already delivering lean tools with existing qualifications and mapping to existing suitable units e.g. BSBMGT516A and BSBMGT403A
Mal Gammon	Future Now	contact	
Greg Grace	Heidelberg Australia and New Zealand	survey	
Rob Graham	etas Group	interview	suggested linking of lean, ethic and professional attitudes and sustainability in a new unit
Ross Heazelwood	EE-OZ Training Standards	interview	Indicated he was unaware of any discussions regarding lean skills and the EE-OZ training packages, showed some interest
David Hanneford	Victorian TAFE Association	contact	
Anna Henderson	Business Skills Victoria	survey	sought payment for arranging focus group and then ran out of time

Caryl Hertz	RMIT University	interview	RMIT proposed need for a new qualification to respond to increasing demand for skills in sustainability and lean. With increasing compliance and regulation, sees new careers for technical experts e.g. Parallels with OH&S.
Lawry Hill	Central TAFE	interview	Raised concerns that the higher the qualifications, the more managerial skills, often at the expense of more complex technical skills. Also raised the differences between institutional training delivery as opposed to in the work place and the delivery of lean.
Richard Jenkins	Richard Jenkins & Associates	interview	
Te	Manufacturing and Engineering Skills Advisory Board Inc	interview	Raised concerns about industries seeing themselves as unique as needing their own units, supports stream lining of packages and developing generic units supported by flexible rules.
Carlo Lauricella	Applied Training Solutions		
Elizabeth Lendrum	BSISB	contact	required payment of \$1,000 per focus group to assist with organising, complained about having to do IBSA and the Consultant's work
Sarah Lethbridge	Lean Enterprise Research Centre Cardiff University	email	Provided information re their competency framework Prof Peter Hines lectures at UniSA on lean thinking
Megan Lilly	Manufacturing Skills Australia	copies of letters re Victorian	
Peter Mansfield	Printing Industries Association of Australia		felt matters had already been discussed and agreed at the recent training package review, wasn't keen to seek industry input again
Pam McLeod	Skills Victoria 3/2 Treasury Place	interview	Victorian Skills Commission Manufacturing Skills and Training Taskforce existing activities in secondary schools, using lean to prepare students for work, see consultation feedback
Paul Nieuwhof	Printing Industries Association of Australia	interview	Raised concerns re industry moving faster than education can respond to. Private RTOs provide flexibility and responsiveness but Tafe not able to meet the needs of industry in terms of delivery logistics and methodology. See some common ground between sustainability and lean but also raised the differences with sustainability having social, environmental and economic benefits and lean being more commercial in its benefits.
Bob Paton	Manufacturing Skills Australia	interview	Plan to review Competitive Manufacturing Training during 2010 and remove/reduce focus on manufacturing to have wider appeal. Happy to involve IBSA staff.

Simon Peppercorn	Printing Industries Association of Australia	interview	Offer industry programs linking "Lean and Green" and industry accreditation.
David Robinson	Robert Bosch (Australia) Pty Ltd	correspondence	
Wendy Rose	Skills Victoria	interview	
Sharon Ross	C.Y.O'Connor College of TAFE	survey and interview	Felt more systematic approach by IBSA and state authority was required to align with COAG reforms. Raised concerns that avenues for consultation are not better used eg. recent TAA consultations. Similarities between sustainability, lean and green leading to some confusion between topics. Increasing and often conflicting demand on VET practitioners.
Michelle Russell	Mission Australia	contact	cancelled appointment
Lindsay Ryan	Corporate Education Advisers Pty Ltd	interview	Links to existing tertiary programs
Nita Schultz	Victorian TAFE Association	very useful and helpful contact for focus session	
Dorothy Sinclair	Senior Program Officer Department of Training and Workforce Development	contact for Skills Boards	
Andrea Smith	Creative Industries Skills Council	survey	
Jill Stapley	Phoenix Business College	interview	
Geoff Thomas	RMIT Business TAFE School	interview	RMIT proposed need for a new qualification to respond to increasing demand for skills in sustainability and lean. With increasing compliance and regulation, sees new careers for technical experts e.g. Parallels with OH&S.
Jeremy Trott	Training Services Australia	interview	Questioned who was driving this activity, education of industry and the current trends in learner centered training and its alignment with lean thinking. As successful implementation of lean required strong organisational commitment, often RTOs are required to fill gaps where organisations don't provide these work experiences.
Agnes Vukovic	TAFE NSW Training and Education Support	survey	
Arnold Wong	Australian Computer Society Inc	interview	Sees strong link between lean and customer service loop, important for the ICT industry call clients "users". Emphasised education should practice lean principals in their own approach and delivery of training.
Arnold Wong	WA Land Information Authority	interview	