



Australian
Industry and
Skills Committee

SUSTAINABILITY

Case for Change

Name of allocated IRC(s): Sustainability
Name of the SSO: IBSA Manufacturing

1. Administrative information

For a list of the products proposed to be reviewed as part of this project, please see **Attachment A**.

Name of IRC(s):	Sustainability Industry Reference Committee
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Name of SSO:	IBSA Manufacturing
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1.1 Name and code of Training Package(s) examined to determine change is required

MSS – Sustainability training package

2. The Case for Change

For information on the job roles to be supported through the proposed qualifications updates, enrolments data, completion rates, and the number of RTOs delivering these qualifications please see **Attachment B**.

2.1 Rationale for change

This case for change, which has been guided and informed by the Sustainability IRC, will investigate an improved structure for the Sustainable Operations and Environmental Monitoring qualifications in the MSS Sustainability Training Package. This work will include the review and redevelopment of four qualifications and 41 units of competency (14 in Sustainable Operations and in 27 Environmental Monitoring).

- MSS40118 - Certificate IV in Sustainable Operations
- MSS50118 - Diploma of Sustainable Operations
- MSS40218- Certificate IV in Environmental Monitoring and Technology
- MSS50218 - Diploma of Environmental Monitoring and Technology

The 41 units of competency are listed in **Attachment A**.

These qualifications support job roles including Team Leader/Supervisor (Sustainability), Sustainability Technician/Auditor/Officer, Environmental Consultant/Assistant/Technician/Protection Officer/Compliance Officer/Planning Officer, Ecological Fieldhand, Water Resources Officer, Assistant Field Officer and Local Government Officer (see **Attachment B**).

The project will review and update the units contained within the Sustainable Operations and the Environmental Monitoring and Technology qualifications (within the Sustainability Training Package) so that they support new legislation and new job role requirements which have arisen in the manufacturing sector. These qualifications have not been reviewed and updated since 2016 and industry feedback indicates that they do not reflect current job roles and the contemporary demands of the manufacturing sector. Not only do these qualifications need to be reviewed to reflect current and contemporary job role and industry requirements, but emerging skills requirements are also expected to result from new drivers outlined below.

The *Sustainability Industry Reference Committee Skills Forecast and Proposed Schedule of Work 2019–2023* submitted to AISC in April 2019 is a key source of information about current and emerging skill needs in this Case for Change. Further industry consultation has identified critical issues driving the need to review and redevelop training package components across the Sustainable Operations and the Environmental Monitoring and Technology streams of the MSS Sustainability Training Package as summarised below.

Summary of Industry Changes Driving this Case for Change

Sustainable Operations

There are three sets of changes driving this case for change: *the ban on waste, a global shift towards a circular economy and the need to align qualifications to emerging and future job roles*. Changes in waste import standards in countries around the world have highlighted the need for Australia to manage its own waste more efficiently. In 2018, China introduced new restrictions on the recyclable materials it imports through its National Sword Policy. Australia is one of more than 100 countries impacted by China's new restrictions. In late 2020, the federal government passed legislation banning the export of unprocessed waste overseas via the *Recycling and Waste Reduction Act 2020*.

Furthermore, there has been a global shift towards a "circular economy" with the realisation that by 2025, the initiative could generate over \$1 trillion of annual material savings globally. The Australian manufacturing sector needs to keep pace with this global trend and moving toward closed loop systems which include recycling, reuse and remanufacturing principles will enable Australia to offer traceable premium green products and reduce reliance on imported goods and materials. (see **Attachment F**)

Feedback obtained through industry engagement activities also highlighted the value of the Sustainable Operations qualifications and identified the need to align emerging and future job roles to the circular economy and new technologies. Rationalisation opportunities have been explored and future scoping will seek to identify further strategies such as skillsets to support pathways to the full range of job roles.

Based on IBSA's recent *Modern Manufacturing Industry Consultation*, demand for skills in sustainable operations is driving a need for a more sophisticated and strategic skills base including knowledge and understandings such as science-based targets, triple bottom lines, governance, leadership and management, data interpretation and communication.

Additionally, there are emerging federal and state initiatives which support the development of the circular economy. The Australian government's Cooperative Research Centres Projects (CRC-P) Grants provide funding for short-term research collaborations in many areas including sustainability. The Australian Government has also partnered with industry and academia to establish a new Centre of Excellence to drive industry-led product stewardship action in Australia. The Centre of Excellence supports business to better manage the environmental impacts of their products.

Recycling Victoria, Victoria's circular economy policy and action plan, will fundamentally overhaul the state's recycling system and will help to create 3,900 jobs in the environmental protection space which covers many job roles discussed in this case for change. Recycling Victoria addresses the urgent challenges which have caused disruptions to Victoria's recycling services and makes fundamental changes to help prevent these issues from recurring.

The City of Melbourne has established the *Waste Minimisation and Innovation Fund 2021* which provides an annual total of \$175,000 in funding is available through circular economy innovation grants. The circular economy innovation grants are available to support small businesses, small social enterprise/start-ups and medium-sized food businesses working to reduce waste production across the City of Melbourne.

In response to the ban on waste, a global shift towards a circular economy and the need to align qualifications to emerging and future job roles, the project will consider the incorporation of circularity skills into existing units. The units specifically identified for inclusion of circularity skills are listed below:

- MSS015026 Develop strategic sustainability plans
- MSS403085 Ensure process improvements are sustained
- MSS024014 Implement environmental management plans and procedures

- MSS027013 Coordinate environmental management activities
- MSS402002 Sustain process improvements
- MSS407020 Undertake a qualitative review of a process change
- MSS024015 Apply an understanding of environmental principles to a site
- MSS408006 Develop and refine systems for improvement in operations
- MSS015024 Develop required sustainability reports
- MSS015039 Develop response to corporate social responsibility
- MSS014014 Implement social sustainability in work practices
- MSS015027 Implement sustainability plans
- MSS014008 Improve sustainability through readily implementable change.

Although it is currently not possible to provide their titles, it is expected that up to five new units will provide coverage of the specific circular economy skills relating to management, policy/procedures, design, procurement, and waste management which will be incorporated into sustainable operations qualifications. These new units will become part of a new skillset (along with existing units) which will support the upskilling of existing workers in moving toward closed loop systems which include recycling, reuse and remanufacturing principles.

This cross-sector approach addresses a recommendation in the *Environmental Sustainability Expert Panel* report where IRCs were challenged to explore the availability of cross-sectorial units to meet industry requirements for environmental sustainability skills. These new units would meet the needs of many sectors due to their cross-sector nature and will also be available to be imported into other training packages.

At the qualifications level, industry feedback has identified that the terminology used in the qualifications does not reflect contemporary language and concepts. All relevant units of competency in the Sustainable Operations qualifications need to reflect current language and concepts in sustainability. Additionally, the entire sustainability sector functions on legislation and the qualifications need to promote greater awareness of government regulations. For example, where to find environmental legislation, acts, regulations, standards, guidelines, criteria, policies, etc. Furthermore, we will explore opportunities to rationalise superfluous units or units with low-enrolments and they may be removed from the qualification.

Environmental Monitoring and Technology streams

Industry has provided advice on new job roles which have emerged in the thermography and occupational hygiene sectors. The thermography sector requires skilled workers who can interpret and report on data. The thermography industry uses thermal imaging cameras which detect the energy that is produced by an object or animal and turn this into an image. This can be used for analysis, evaluation accuracy and report writing. A lack of skill and understanding of how to interpret the information is creating significant safety and economic risks for the industries that use thermographic imaging services. New skills are required in interpreting and presenting data, including validating laboratory reports and 'data visualisation', which involves interpreting the available data and communicating it in a way that can be acted upon within an organisation.

The reworking of units proposed in this case for change to include more data analysis skills will assist in addressing a recent trend identified in the *Jobs of Future Index* conducted by consulting firm *Cognizant*. The Index reveals that while "jobs of the future" are still below their pre-pandemic levels, the results suggest they are on their way back. "Jobs of the future" focus on digital skills, data analytics, 3D design and the

industrial internet of things (IIoT). A reworking of units contained within the Environmental Monitoring and Technology specialisation to include data analysis skills could assist in a post-COVID revival of “jobs of the future”.

In the case of the occupational hygiene job role, the current qualifications need to cover this area. The job role centres around workplace health and not workplace safety per se and consequently there is a significant gap in the vocational training market in this area. Some examples of vocational work in this area include:

- Asbestos inspection and air monitoring;
- Dust exposure monitoring/real time ambient dust concentration;
- Fume exposure monitoring (welding and metal spraying); and
- Coal dust exposure monitoring.

Additionally, industry consultation has identified that terminology used in the Environmental Monitoring and Technology qualifications also needs to reflect current sustainability practices. For example, the units of competency need to be updated to reflect current terminology around corporate social responsibility.

The issues raised by stakeholders and the appropriate training package response can be found in ***Attachment D***.

Implications of not implementing change:

The risks of not implementing the proposed changes are as follows:

- There may be a danger of the thermography and occupational hygiene job roles not having skill pathways.
- If circular economy issues come dramatically to the fore in the coming years, job roles in the manufacturing sector will not have received the necessary upgrades to include emerging sustainability principles.
- There is a risk that workers may not be upskilled in new circular economy end-to-end manufacturing principles (i.e. how to design, manufacture and dispose of products with the circular economy in mind) which are needed due to the waste export ban.
- Training package content will not fully reflect the current and emerging skill needs in industry such as embedding workplace practices in circular economy principles.
- Superfluous or low-enrolment qualifications will remain in the training system.
- Unit content which does not reflect up-to-date terminology will remain in the qualifications.

2.2 Evidence for change

IBSA has undertaken ongoing consultation and research since 2018 which has informed this Case for Change. This consultation and research consisted of focus groups, interviews and questionnaires and it revealed that the sustainability sector is becoming more sophisticated, which is bringing with it a demand for clear science and economic evidence on which to base decisions, as opposed to ‘environmentally friendly’ motivations.

The need for circular economy skills, was initially raised by an IRC member associated with the Centre for Sustainable Materials Research and Technology (SMaRT). The centre has conducted significant groundwork in relation to circular economy principles and is considered to be a leader in this area.

The Federal Government's *Modern Manufacturing Strategy* (MMS) identifies "recycling" as one of the five priority areas further strengthening the need to skill/upskill workers to meet this challenge. This link was reinforced and discussed broadly in the *Modern Manufacturing Industry Consultation* that IBSA undertook. The updating of existing units and the creation of a circular economy skillset will ensure that workers are trained/upskilled in recycling related job roles and ensure that occupations remain relevant to contemporary sustainability principles.

As further evidence of change, stakeholder feedback was received via IBSA's *Modern Manufacturing Industry Consultation* and one-on-one interviews. The one-on-one interviews with industry and RTO stakeholders demonstrated the importance of the circular economy. When asked what role the circular economy will play over the next five years, the stakeholders discussed the following themes (see **Attachment F**):

- *"The circular economy is a game changer".*
- *"It will play a huge part, we need equipment to last longer".*
- *"It will be massive, the critical issue for Australia is the debate on emissions".*
- *"Circular economy is how you create a lifecycle of the product".*
- *"It's going to make a big difference when government funding is sought".*

Additionally, IBSA's Sustainability Training Package "Issues Register" received stakeholder feedback which highlights the need to update terminology to reflect current best practice, new legislative requirements for environmental sustainability and the need to redevelop these qualifications to better meet industry needs.

In conclusion, feedback obtained through the aforementioned stakeholder engagement activities highlighted the value of the Sustainable Operations/Environmental Monitoring qualifications and identified the need to align emerging and future job roles to the circular economy and new technologies. In turn, these skills can support industry transition to new models in advanced manufacturing such as Industry 4.0, digitisation and the circular economy. As such, a review of the current Sustainable Operations and Environmental Monitoring qualifications which improves alignment with contemporary job roles is timely to provide pathways for skilled workers and ensures the MMS is fully supported.

2.3 Consideration of existing products

IBSA Manufacturing recently conducted a search using the TGA text analysis tool and "training.gov.au" to identify any relevant units covering circular economy skills. Although we found related units, they did not touch on the circular economy and had a different focus. The relevant units identified were:

- Develop workplace policy and procedures for sustainability (AHCWRK511);
- Apply environmentally sustainable work practices (AHCWRK309);
- Conduct sustainable work practices in open spaces (SISXRES001); and
- Participate in environmentally sustainable work practices (AHCWRK209).

Sustainability units identified focused on "standard sustainability practices" and do not cover circular economy principles.

In relation to the development of a circular economy skillset, consideration has been given to the use of existing skillsets available on training.gov.au (e.g. *Sustainable Practice Skill Set TAESS00016*). However, these do not meet the current requirements of the manufacturing industry. The manufacturing sector requires a circular economy skillset to fully immerse the learner/student in circular economy principles.

2.4 Approach to streamlining and rationalisation of the training products being reviewed

As a result of the removal of the two graduate qualifications from the MSS Sustainability Training Package resulting from the Minister's streamlining process, there are 3 units which are no longer linked to qualifications. This project will review these units to identify where the skills are associated with particular job roles and ensure that qualifications are updated appropriately.

Additionally, the project will include:

- A review of low or no enrolment units and deletion of any unnecessary units; and
- The adoption of phrases and terminology in the Sustainable Operations/Environmental Monitoring units of competency that make them accessible and transferrable for use in other training packages.

3. Stakeholder consultation

3.1 Stakeholder consultation undertaken in the development of Case for Change

*For a full list of industry-specific stakeholders that actively participated in the stakeholder consultation process undertaken to develop the Case for Change, please see **Attachment C**.*

As part of the consultation process to demonstrate the manufacturing sector's support for the review of the Sustainable Operations and the Environmental Monitoring qualifications, IBSA Manufacturing conducted the following activities:

- Review of the MSS – Sustainability “Issues Register”;
- Undertook 19 in-depth interviews with industry and RTO stakeholders as part of the Modern Manufacturing Industry consultation;
- Conducted a survey with key industry stakeholders (57 responses) as part of the Modern Manufacturing Industry consultation;
- Undertook in-depth one-on-one consultations with circular economy practitioners; and
- Conducted an extensive literature review on the current relevance of the circular economy.

A public consultation webpage was established to provide stakeholders with broad access to information about the development of this case for change and invite feedback on the training package components. This was promoted to IBSA stakeholders via an email blast to 678 stakeholders, including training providers, State Training Authorities, associations, and industry. State Training Authorities distributed the draft case for change to key stakeholders in their jurisdictions to review. The draft Case for Change was available on the IBSA website from 28 April to 12 May 2021 and 71 people accessed the case for change.

Each state and territory training authority has been consulted and provided the opportunity to give feedback and nominate stakeholders to be included in the project consultation list.

The project will undertake targeted consultation across all States and Territories, where these qualifications are delivered. See **enrolments by state/territory 2016–19** graph in Attachment F.

*For a full list of industry-specific stakeholders contacted to participate in the stakeholder consultation process undertaken to develop the Case for Change, please see **Attachment C**.*

3.2 Evidence of Industry Support

For a list of the issues raised by stakeholders during consultation and the IRC's response to these, please see Attachment D.

Key stakeholders have raised the following issues in relation to this case for change:

- Terminology issues – the terminology used in the qualifications is dated and has not kept paced with industry. All relevant units of competency in the Sustainable Operations qualifications need to reflect current terminology and practices in sustainability.
- Qualifications require greater awareness of government regulations - for example, where to find legislation, acts, regulations, standards, guidelines, criteria, policies etc. The whole sustainability sector functions on legislation.
- Missing Occupational Hygiene specialisation/pathway; and
- The qualifications need to reflect the current circular approach to sustainability.

3.3 Proposed stakeholder consultation strategy for project

Note: For a full list of industry-specific stakeholders who are planned to be contacted to participate in the stakeholder consultation process undertaken for this project, please see Attachment E.

IBSA Manufacturing follows a training package development model, which supports the development of two drafts and two rounds of public consultation. Below is an overview of the process.

- Details about the project are made available on the IBSA Manufacturing website current projects and the result of this was that:
- The MSS IRC nominate Technical Advisory Committee (TAC) members who will:
 - provide specific subject-matter advice and technical expertise for the development and review of the training package components. The TAC is made up of industry representing the broad range of users – and RTO representatives.
 - attend regular meetings throughout the project to discuss draft documents, consider issues presented by stakeholders and through public consultation, and to provide expert advice.
- Develop draft training package components.
- Stakeholder consultation strategies include:
 - Promoting the project via the IBSA website, newsletters and email notifications to subscribed stakeholders and industry groups at key stages of the project.
 - Undertaking industry surveys to obtain feedback about:
 - the job roles of people involved in the circular economy
 - the key tasks performed in the workplace and the skills and knowledge required to complete the tasks competently
 - whether skills and knowledge have changed over time
 - the amount of evidence industry would want to see to know that a person is competent and ready to perform in the workplace.
 - Conducting broader consultation with industry through engagement and meetings with stakeholders, across a number of jurisdictions to collect industry intelligence to inform training package development work.
 - Undertaking targeted consultation with identified stakeholders in Geraldton
 - Completing two rounds of public consultation of draft components for review and comment via the IBSA Manufacturing website.
- Consulting with state and territory training authorities (STAs) throughout the project through:
 - an initial briefing and maintaining open dialogue throughout the project.
 - requesting feedback on Draft 1 and Draft 2/Validation draft components.

- providing opportunity for STAs to review the components and provide feedback at the conclusion of the project, as provisioned for in the Training Package Development and Endorsement Process Policy.
- Feedback received during public consultations is tabled in an Issues Register and considered by the TAC.
- All feedback will be considered, and competing views dealt with through consultation. The outcomes will be approved in IRC meetings.

*For a full list of industry-specific stakeholders who are planned to be contacted to participate in the stakeholder consultation process undertaken for this project, please see **Attachment E**.*

4. Licencing or regulatory linkages

Qualifications within the scope of this Case for Change have linkages to environmental legislation and standards including, but not limited to:

- Recycling and Waste Reduction Bill 2020;
- Environment Protection and Biodiversity Conservation Act 1999;
- Water Act 2007; and
- AS/NZS ISO 14001 Environmental Management Systems.

5. Project implementation

5.1 Prioritisation category

It is proposed that this project be progressed as a “routine project”. The routine prioritisation category is based on:

- The need for the Sustainable Operations and the Environmental Monitoring qualifications to reflect current job roles.
- The manufacturing sector’s need for a circular economy skillset as requested in the extensive stakeholder consultation undertaken by IBSA.

5.2 Project milestones

Key project milestones include:

- AISC project approval – June 2021
- Draft 1 consultation research and analysis– June – July 2021
- Draft 1 consultation and stakeholder feedback– September 2021
- Stakeholder validation – October - December 2021
- Quality Assurance – January – February 2022
- Final consultation with states and territories – March - April 2022
- CfE submitted for approval – May 2022

Note: IBSA will handover draft 1 components, consultation report and files in December 2021 as required.

5.3 Delivery or implementation issues

During one-on-one consultations, stakeholders have raised issues arising this case for change. These barriers to implementation include:

- the willingness and ability for RTOs to get the updated Sustainable Operations/Environmental Monitoring qualifications and skillset on scope.

Implementing the Skills Minister's Priority reforms for Training Packages (2015 and October 2020)

The case for change addresses the following priorities:

Ensure that more information about industry's expectations of training delivery is available to training providers to improve their delivery and to consumers to enable more informed course choices:

The Implementation Guide will be updated to:

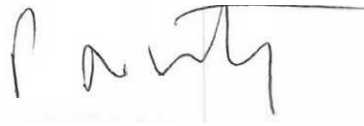
- include information on industry expectations of training delivery.

This Case for Change was agreed to by the Sustainability IRC

Name of Chair

Peter Nemtsas

Signature of Chair

A handwritten signature in black ink, appearing to read "Peter Nemtsas", written in a cursive style.

Date

20/05/2021

Attachment A: Training Package components to change

IBSA Manufacturing

Contact details: Antoinette Hewitt

Date submitted: 20/05/2021

Project number	Project Name	Qualification/ Unit / Skillset	Code	Title	Details of last review <i>(endorsement date, nature of this update transition, review, establishment)</i>	Change Required
1	Sustainability CfC	Qualification	MSS40118	Certificate IV in Sustainable Operations	Minor IRC upgrade 30/Jul/2020	Update
1	Sustainability CfC	Qualification	MSS50118	Diploma of Sustainable Operations	Minor IRC upgrade 30/Jul/2020	Update
1	Sustainability CfC	Qualification	MSS40218	Certificate IV in Environmental Monitoring and Technology	Minor IRC upgrade 30/Jul/2020	Update
1	Sustainability CfC	Qualification	MSS50218	Diploma of Environmental Monitoring and Technology	Minor IRC upgrade 30/Jul/2020	Update
1	Sustainability CfC	Unit	MSS025018	Assess the environmental risk and impact of a project activity or process	Reviewed 22/Oct/2018	Update

1	Sustainability CfC	Unit	MSS025013	Assist with assessing and monitoring wetlands	Reviewed 22/Jun/2016	Update
1	Sustainability CfC	Unit	MSS025017	Assist with assessing site environmental indicators	Reviewed 22/Oct/2018	Update
1	Sustainability CfC	Unit	MSS025021	Collect and evaluate groundwater data	Reviewed 22/Oct/2018	Update
1	Sustainability CfC	Unit	MSS024019	Collect and evaluate meteorological data	Reviewed 22/Oct/2018	Update
1	Sustainability CfC	Unit	MSS024017	Collect spatial and discrete environmental data	Reviewed 22/Oct/2018	Update
1	Sustainability CfC	Unit	MSS015011	Conduct a sustainability energy audit	Reviewed 22/Jun/2016	Update
1	Sustainability CfC	Unit	MSS015028	Conduct a sustainable water use audit	Reviewed 22/Oct/2018	Update
1	Sustainability CfC	Unit	MSS015030	Conduct an emissions audit	Reviewed 22/Oct/2018	Update
1	Sustainability CfC	Unit	MSS027017	Contribute to environmental decision making	Reviewed 22/Oct/2018	Update
1	Sustainability CfC	Unit	MSS027013	Coordinate environmental management activities	Reviewed 22/Oct/2018	Update

1	Sustainability CfC	Unit	MSS015025	Develop a business case for sustainability improvements	Reviewed 22/Oct/2018	Update
1	Sustainability CfC	Unit	MSS015037	Develop regulated sustainability reports	Reviewed 25/Jun/2019	Update
1	Sustainability CfC	Unit	MSS015024	Develop required sustainability reports	Reviewed 25/Jun/2019	Update
1	Sustainability CfC	Unit	MSS015039	Develop response to corporate social responsibility	Establishment 25/Jun/2019	Update
1	Sustainability CfC	Unit	MSS015026	Develop strategic sustainability plans	Reviewed 22/Oct/2018	Update
1	Sustainability CfC	Unit	MSS015020	Facilitate an energy audit	Establishment 22/Oct/2018	Update
1	Sustainability CfC	Unit	MSS024014	Implement environmental management plans and procedures	Reviewed 22/Oct/2018	Update
1	Sustainability CfC	Unit	MSS014014	Implement social sustainability in work practices	Reviewed 22/Oct/2018	Update
1	Sustainability CfC	Unit	MSS015027	Implement sustainability plans	Reviewed 22/Oct/2018	Update
1	Sustainability CfC	Unit	MSS014008	Improve sustainability through readily implementable change	Reviewed 22/Oct/2018	Update

1	Sustainability CfC	Unit	MSS015021	Measure and report carbon footprint of a product or product class	Reviewed 22/Oct/2018	Update
1	Sustainability CfC	Unit	MSS025008	Monitor and evaluate noise	Reviewed 22/Jun/2016	Update
1	Sustainability CfC	Unit	MSS024023	Navigate in urban, regional and remote areas	Reviewed 22/Oct/2018	Update
1	Sustainability CfC	Unit	MSS024022	Perform environmental biological techniques	Reviewed 22/Oct/2018	Update
1	Sustainability CfC	Unit	MSS025012	Perform environmental microbiological tests	Reviewed 22/Oct/2018	Update
1	Sustainability CfC	Unit	MSS025009	Perform sampling and testing of air	Reviewed 22/Jun/2016	Update
1	Sustainability CfC	Unit	MSS025014	Perform sampling and testing of contaminated sites	Reviewed 22/Oct/2018	Update
1	Sustainability CfC	Unit	MSS025022	Perform sampling and testing of soils	Reviewed 22/Oct/2018	Update
1	Sustainability CfC	Unit	MSS024018	Perform sampling and testing of water	Reviewed 22/Oct/2018	Update
1	Sustainability CfC	Unit	MSS025023	Plan and conduct environmental project work	Reviewed 22/Oct/2018	Update

1	Sustainability CfC	Unit	MSS024016	Process and present environmental data	Reviewed 22/Oct/2018	Update
1	Sustainability CfC	Unit	MSS025005	Produce site maps	Reviewed 22/Oct/2018	Update
1	Sustainability CfC	Unit	MSS027015	Provide environmental advice to clients	Reviewed 22/Oct/2018	Update
1	Sustainability CfC	Unit	MSS025020	Provide environmental information to customers	Reviewed 22/Oct/2018	Update
1	Sustainability CfC	Unit	MSS024020	Recognise common geological landforms and samples	Reviewed 22/Oct/2018	Update
1	Sustainability CfC	Unit	MSS025019	Report environmental data	Reviewed 22/Oct/2018	Update
1	Sustainability CfC	Unit	MSS015035	Report to Global Reporting Initiative Standards	Reviewed 25/Jun/2019	Update
1	Sustainability CfC	Unit	MSS027018	Undertake complex environmental project work	Reviewed 22/Oct/2018	Update
1	Sustainability CfC	Unit	MSS024024	Undertake simple environmental project activities	Reviewed 22/Oct/2018	Update
1	Sustainability CfC	Unit	MSS024013	Work and communicate effectively as an environmental technician	Reviewed 22/Oct/2018	Update

1	Sustainability CfC	Unit 1	MSSXXXXXX			New
1	Sustainability CfC	Unit 2	MSSXXXXXX			New
1	Sustainability CfC	Unit 3	MSSXXXXXX			New
1	Sustainability CfC	Unit 4	MSSXXXXXX			New
1	Sustainability CfC	Unit 5	MSSXXXXXX			New
1	Sustainability CfC	Skillset	MSSSXXXXX			New

Attachment B: Job role, enrolment information, the number of RTOs currently delivering these qualifications

Please set out the job roles to be supported through the updated qualifications, enrolment data over the past three years in which data is available for each qualification, completion rates for each qualification, and the number of RTOs delivering these qualifications.

Job role	Qualification to be updated to support the job role	Enrolment data (2017-19)	Completion rates (2017-19)	Number of RTOs delivering
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<ul style="list-style-type: none"> • Team Leader / Supervisor (Sustainability) • Sustainability Technician 	Certificate IV in Sustainable Operations	5	0	3
<ul style="list-style-type: none"> • Sustainability Auditor • Sustainability Officer • Environmental Consultant 	Diploma of Sustainable Operations	410	65	2
<ul style="list-style-type: none"> • Sustainability Officer • Environmental assistant • Environmental technician • Ecological Fieldhand • Environmental officer • Water Resources Officer 	Certificate IV in Environmental Monitoring and Technology	165	35	5
<ul style="list-style-type: none"> • Environmental Compliance Officer (Local Government) • Environmental Officer • Environmental Technician • Environmental protection officer • Assistant Field Officer • Technical Officer • Local Government Officer • Water Resources Officer • Environmental Planning Officer 	Diploma of Environmental Monitoring and Technology	475	145	5

Attachment C: List of stakeholders that actively participated in the consultation process of the Case for Change

Note: The following stakeholders were not directly consulted with regarding this case for change but were interviewed as part of an industry engagement process where they provided feedback about circular economy principles.

Name of stakeholder	Title	Organisation	Organisation type (e.g. Employer, peak body, union, RTO, regulator)	Jurisdiction/town/city (e.g. NSW/Sydney)
John Condilis	Director	Nobody Denim	Employer	VIC, Melbourne

Meriel Chamberlin	Founder	Full Circle Fibres	Employer	QLD
Paul Saunders	Curriculum Maintenance Manager	Chisholm Institute	RTO	VIC, Melbourne
Bradley Anderson	Program Design	NSW Government	Regulator	NSW, Sydney
Bo Christensen	Innovator and implementor, Energy Strategy	Productivity and Sustainability, Workplace Strategy	Employer	VIC, Melbourne
Sasha Kraft	General Manager	Slater Cabinets	Employer	WA, Perth
Eddy Constable	Director	Welding Quality Management Systems	Employer	Newcastle, NSW
Han Michel	Owner	E-three & Associates Pty Ltd	Employer	Newcastle, NSW
Janet Dobbie	HR Manager	Varley Group	Employer	Newcastle, NSW
Leanne Reid,	Leaning and Development Advisor	Quenos	RTO	Sydney, NSW
Nick Eleftheriou	President	The Australian Institute for NDT (AINDT)	Peak Body	Melbourne, VIC
Matthew Pearson	Teacher	CQ University	RTO	QLD
Matthew Scrimgeour	Apprentice Program Manager	Fairbrother Construction	RTO	Devonport, TAS
Paul Twynham	Managing Director	Chatoyer Environment	Employer	Sydney, NSW

Simon Gazia	Managing Director	LTT Group Pty Ltd	RTO	Perth, WA
Steven Quirk	Director	Frontline Group	Employer	Melbourne, VIC
Troy Scott	Training Manager	Alliance Airlines	RTO	Brisbane, QLD
Hilde Heim	Fashion Designer	Australian Institute of Creative Design	RTO	Brisbane, QLD
David Fox	General Manger	LA Services	Employer	Sydney, NSW

Attachment D: Issues Raised by Stakeholders during consultation on the development of the Case for Change

Stakeholder Type	Issues Raised	IRC's Response to Issues Raised
Industry Reference Committee (IRC) Representatives		
Peak Industry Bodies		
Employers (Non-IRC)	Within the manufacturing sector, displace those cosy sustainability solutions that have been around for a while with something that's more edgy and different. Human nature is that you follow the path of least resistance.	The circular economy skillset contained within this case for change will assist partitioners in moving away from traditional sustainability solutions into my more "circular" approaches in reusing resources.
Regulators		
Registered Training Organisations (RTOs)	<p>Terminology used in the qualifications needs to reflect contemporary language and concepts.</p> <p>Qualifications require greater awareness of government regulations.</p> <p>Missing Occupational Hygiene specialisation.</p> <p>Qualification needs to reflect the current circular approach to sustainability.</p>	IBSA will review and update the in Sustainable Operations/ Environmental Monitoring qualifications based on the feedback provided by stakeholders
Training Boards/Other		
State and Territory Training Authorities (STAs)	No issues were raised	
Unions		

Attachment E: List of stakeholders to be contacted as part of the development of the Case for Endorsement

Name of Stakeholder	Title	Organisation	Organisation type (e.g. Employer, peak body, union, RTO, regulator)	Jurisdiction/town/city (e.g. NSW/Sydney)
Peter Ballas	Head of Business Excellence at Note Printing Australia	Association for Manufacturing Excellence	Peak body	National
Sam Stewart	CEO	Association for Sustainability in Business	Peak body	QLD
Analisa Haskell	CEO	Australian Land and Groundwater Association	Peak body	NSW
Julia Cabbage	CEO	Australian Sustainable Built Environment Council	Peak body	NSW
Australian Sustainable Business Group		Australian Sustainable Business Group	Peak body	
Andrew Petersen	CEO	Business Council of Sustainable Development	Peak body	Sydney, NSW
Centre for Sustainability Leadership		Centre for Sustainability Leadership	Peak body	Melbourne, VIC
Bryon Price	Chairman	Facility Management Association	Peak body	Melbourne, VIC
Luke Menzel	CEO	Energy Efficiency Council	Peak body	Melbourne, VIC
Lisa Warner	CEO	LEAN Enterprise Australia	Peak body	Melbourne, VIC

Bill Swetman	Managing director	Central Regional TAFE	RTO	Geraldton, WA
Bethune Carmichael	Waste and recycling policy office	Australian Local Government Association	Peak body	Canberra, ACT

Attachment F: Circular Economy Background

A circular economy is an economic system aimed at eliminating waste and the continual use of resources. Circular systems employ reuse, repair and recycling to create a closed-loop scheme, minimising the use of resources and the creation of waste. The circular economy aims to keep products, equipment and infrastructure in use for longer, thus improving the productivity and longevity of these resources. Waste materials and energy should become input for other processes.

The circular economy touches on every part of the manufacturing sector. The circular economy needs are immense, but it also should be regarded as having massive opportunities. As part of the Australian government's modern manufacturing strategy, the circular economy will create the opportunity to invest in the new technologies and research and as well require a new range of skills and capabilities across the whole sector. Some of these skills will be specific to the circular economy and some will be quite generic.

Background

In early August 2019, the Council of Australian Governments (COAG) agreed that Australia should establish a timetable to ban the export of waste plastic, paper, glass and tyres, while building Australia's capacity to generate high value recycled commodities from these waste products.¹

Changes in waste import standards in countries around the world have highlighted the need for Australia to manage its own waste more efficiently. In 2018, China introduced new restrictions on the recyclable materials it imports through its National Sword Policy. Australia is one of more than 100 countries impacted by China's new restrictions.²

On 8 November 2019, the Australian commonwealth, state and territory environment ministers agreed that waste plastic, paper, glass and tyres which have not been processed into useful materials should be banned from export from Australia.³

Sustainable and agile manufacturing

Australian needs an agile manufacturing sector that responds to changing markets to supply high-value exports and support up-and-coming industries. The sector's workforce needs to be informed, experienced and passionate about closed loop, sustainable manufacturing systems that leverage recycling and green energy.⁴

¹ National Waste and Recycling Taskforce, *Banning exports of waste plastic, paper, glass and tyres*, available from <https://www.environment.gov.au/system/files/consultations/bf403fda-b6d7-4476-9c6f-5627502d52a4/files/waste-export-ban-discussion-paper-november-2019.pdf>, Canberra: Department of Environment and Energy, November 2019, p.4

² Ibid.

³ Ibid.

⁴ Ibid.

Moving toward closed loop systems with recycling, reuse and remanufacturing principles will enable Australia to offer premium green products and reduce reliance on imported goods and materials. The ability to use flexible and digitised manufacturing will also allow manufacturers to pivot their production lines to meet supply shortages and then revert production once the shortfall has been met.¹

Stakeholder Consultation

IBSA takes the opportunity in all consultations with the manufacturing sector to gather data and feedback about the *circular economy* and its related principles. As part of the recent Modern Manufacturing Industry Consultation, IBSA manufacturing conducted the following activities with some focus on the circular economy:

- 19 in depth interviews with industry and RTO stakeholders;
- A survey with key industry stakeholders (57 responses);

Further to this, IBSA also conducted research specifically on the topic of the circular economy including:

- In-depth one-on-one consultations with circular economy practitioners; and
- An extensive literature review on the current relevance of the circular economy.

The circular economy is becoming a crucial aspect of the Australian manufacturing sector. The aforementioned in-depth interviews with industry and RTO stakeholders demonstrated the importance of the circular economy. When asked what role the circular economy will play over the next five years, the stakeholders discussed the following themes:

- *“The circular economy is a game changer”.*
- *“It will play a huge part, we need equipment to last longer”.*
- *“It will be massive, the critical issue for Australia is the debate on emissions”.*
- *“It's important, the longer something lasts, the better it is”.*
- *“Circular economy is how you create a lifecycle of the product”.*
- *“It will be critical, Australia produces a lot of textiles waste and we need to stop this”.*
- *“It's going to be very important, we are trying to reduce waste in the pharmaceutical space”.*
- *“It will have some impact in cabinet making and joinery trades”.*
- *“It's going to make a big difference when government funding is sought”.*

¹ CSIRO, “COVID-19: Recovery and resilience: Opportunities for Australia to leverage science and technology to support economic recovery and resilience”, CSIRO; Canberra, 2020

Attachment G: Additional data

Subject enrolments

The review of the units will identify repetitious and obsolete content so that units with low or no enrolments will be deleted, updated or merged to meet the needs of the manufacturing sector's workforce and skill development requirements.

Unit code	Unit title	Enrolments 2016-19
MSS025018	Assess the environmental risk and impact of a project activity or process	20
MSS024021	Assist with assessing and monitoring stormwater systems	0
MSS025013	Assist with assessing and monitoring wetlands	80
MSS025017	Assist with assessing site environmental indicators	17
MSS025011	Assist with odour field assessment	0
MSS025010	Assist with odour source assessment	0
MSS025021	Collect and evaluate groundwater data	0
MSS024019	Collect and evaluate meteorological data	0
MSS024017	Collect spatial and discrete environmental data	0
MSS015011	Conduct a sustainability energy audit	405
MSS015031	Conduct a sustainability related transport audit	0
MSS015028	Conduct a sustainable water use audit	80
MSS015030	Conduct an emissions audit	60
MSS027017	Contribute to environmental decision making	0
MSS027016	Contribute to improving environmental performance	0

MSS027021	Coordinate air quality management activities	0
MSS027013	Coordinate environmental management activities	0
MSS027022	Coordinate noise management activities	0
MSS027023	Coordinate site remediation or rehabilitation activities	0
MSS027020	Coordinate water quality management activities	0
MSS017015	Design for sustainability	0
MSS405089	Develop a business case for improved energy management	0
MSS015025	Develop a business case for sustainability improvements	80
MSS017016	Develop a proactive social sustainability strategy	0
MSS015037	Develop regulated sustainability reports	80
MSS015024	Develop required sustainability reports	60
MSS015039	Develop response to corporate social responsibility	0
MSS015036	Develop response to sustainability related regulation	0
MSS015026	Develop strategic sustainability plans	35
MSS015038	Establish and review metrics for social sustainability	0
MSS015020	Facilitate an energy audit	0
MSS017014	Identify and improve sustainability interactions with the community	0
MSS027019	Implement and maintain the site health and safety management system	0
MSS015033	Implement and monitor reengineering for sustainability	0

MSS024014	Implement environmental management plans and procedures	5
MSS014014	Implement social sustainability in work practices	65
MSS015027	Implement sustainability plans	35
MSS014008	Improve sustainability through readily implementable change	60
MSS015034	Inform and educate organisation and community representatives on sustainability issues	0
MSS405087	Investigate energy management as a business issue	0
MSS017013	Manage a major sustainability non	0
MSS015021	Measure and report carbon footprint of a product or product class	65
MSS025008	Monitor and evaluate noise	185
MSS024023	Navigate in urban, regional and remote areas	0
MSS024022	Perform environmental biological techniques	0
MSS025012	Perform environmental microbiological tests	20
MSS025009	Perform sampling and testing of air	310
MSS025014	Perform sampling and testing of contaminated sites	150
MSS025022	Perform sampling and testing of soils	10
MSS025016	Perform sampling and testing of stationary emissions	0
MSS024018	Perform sampling and testing of water	5
MSS025023	Plan and conduct environmental project work	15

MSS405088	Plan, implement and monitor energy management	0
MSS024016	Process and present environmental data	5
MSS025005	Produce site maps	100
MSS027015	Provide environmental advice to clients	0
MSS025020	Provide environmental information to customers	10
MSS024020	Recognise common geological landforms and samples	0
MSS025019	Report environmental data	0
MSS015035	Report to Global Reporting Initiative Standards	0
MSS027024	Select, commission and maintain environmental monitoring instruments	0
MSS027018	Undertake complex environmental project work	0
MSS024024	Undertake simple environmental project activities	0
MSS024013	Work and communicate effectively as an environmental technician	0

Source: NCVET VOCSTATS 09/04/2021

2020 Employment numbers

Source: Sustainability IRC Prioritisation Report and 2019 MSS Industry Skills Forecast and Proposed Schedule of Work

Qualification	ANZSCO Code and Class	No. of people employed	% annual growth
Certificate IV in Sustainable Operations	3114 Science Technicians	16,948	9.2
Diploma of Sustainable Operations			
Certificate IV in Environmental Monitoring and Technology			
Diploma of Environmental Monitoring and Technology			

Occupation Projections to May 2024¹

Occupation Code	Occupation	Employment level May 2019 ('000)	Department of Employment, Skills, Small and Family Business Projections		
			Projected employment level May 2024 ('000)	Projected employment growth five years to May 2024	
				('000)	(%)
3114	Science Technicians	16.9	17.1	0.2	1.2

¹ Labour Market Information Portal, Australian Government, Occupation Projections – 5 years to May 2024 (Excel), Accessed on 14/04/2021

Apprenticeship funding

Qualification	States/territories where an apprenticeship/traineeship is available	States/territories where the qualification is JobTrainer eligible
Certificate IV in Sustainable Operations	TAS	N/A
Diploma of Sustainable Operations	N/A	N/A
Certificate IV in Environmental Monitoring and Technology	ACT	N/A
Diploma of Environmental Monitoring and Technology	NSW, ACT	NSW

Source: myskills, accessed 14/04/2021