



Australian Government

Department of Education, Employment and Workplace Relations

MSS015003A Analyse product life cycle for sustainability

Release: 1

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Modification History

Not applicable.

Unit Descriptor

This unit of competency covers analysing the life cycle of an existing or a proposed product to inform sustainability related decision making.

This unit does not specifically cover design for sustainability which is covered by MSS015004A Design sustainable product or process.

Application of the Unit

This unit applies to analysing all aspects of a product, including its design, production, storage and distribution, use, and end of life reuse, recycling or disposal. This analysis may be undertaken to assist in improving the sustainability of a product or process.

This unit applies inside organisations and their value chains. The unit has been developed with manufacturing operations as a focus. However, because of the range of organisations in a typical manufacturing value chain it may also be applied to other types of organisations.

It would typically be undertaken by a manager or technical specialist who had a major responsibility for sustainability as part of a broader work role, or sustainability may be their primary work responsibility. The technologist may undertake this alone or as part of a team.

The technical measurement of operational performance or measurement of emissions or other environmental impact is not covered by this unit.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills

Elements and Performance Criteria Pre-Content

Not applicable.

Elements and Performance Criteria

- 1 Assess raw sources of material and resources
 - 1.1 Identify current or planned materials back to their source in the value chain
 - 1.2 Identify possible alternative materials/sources
 - 1.3 Assess the sustainability impacts of each material
- 2 Assess the production process
 - 2.1 Identify design brief for product
 - 2.2 Map out the current or planned process
 - 2.3 Assess the sustainability impacts of each process
 - 2.4 Assess the sustainability impact of each material on the process sustainability
 - 2.5 Identify possible alternative steps or processes
 - 2.6 Determine if alternative steps or processes maintain design brief while improving sustainability
- 3 Assess the product life and end of life disposal
 - 3.1 Determine sustainability impacts from steps to final consumer
 - 3.2 Determine sustainability impacts from likely uses and applications
 - 3.3 Determine sustainability impacts from final use or disposal at end of life
 - 3.4 Identify possible alternative steps to customer, use and disposal
 - 3.5 Determine sustainability impacts from these alternatives
- 4 Develop strategies to improve life cycle
 - 4.1 Identify alternative processes, logistics, usage and disposal with better sustainability impacts
 - 4.2 Determine requirements to implement these alternatives
 - 4.3 Determine benefit/cost for each alternative
 - 4.4 Select preferred alternatives

5 Prepare a recommendation for life cycle improvement

5.1 Consult with key stakeholders

5.2 Prepare a recommendation for improving product life cycle

Required Skills and Knowledge

Required knowledge includes:

- value chain for analysed products
- sources and uses of materials
- alternative sources of materials
- production process and sustainability impacts of process
- sustainability impacts of supply chain and delivery chain
- alternative ways of delivering value to customer
- cost-benefit calculation

Required skills include:

- communicating with stakeholders
- analysing processes, logistics, material usages, costs and benefits
- consulting on existing and alternative processes and materials
- preparing recommendations

Evidence Guide

Overview of assessment	A person who demonstrates competency in this unit must be able to identify determine the life cycle of a product, including resources and materials used in production, and be able to recommend improvements in product life cycle.
Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently apply the skills covered in this unit of competency in new and different situations and contexts. Critical aspects of assessment and evidence include: <ul style="list-style-type: none"> • identifying materials and their source in the value chain • identifying current and alternative steps in the production process and their sustainability impact • assessing sustainability impact to end of life • suggesting sustainability improvements at each stage of life cycle • analysing re-use and recycling options.
Context of and specific resources for assessment	<ul style="list-style-type: none"> • This unit of competency is to be assessed in the workplace or a simulated workplace environment. • Assessment should emphasise a workplace context and procedures found in the candidate's workplace. • This unit of competency may be assessed with other relevant units addressing sustainability at the enterprise level or other units requiring the exercise of the skills and knowledge covered by this unit. • The competencies covered by this unit would be demonstrated by an individual working alone or as part of a team.
Method of assessment	<ul style="list-style-type: none"> • In all cases, practical assessment should be supported by questions to assess underpinning knowledge and those aspects of competency which are difficult to assess directly. • Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability. • The language, literacy and numeracy demands of assessment should not be greater than those required to undertake the unit of competency in a work-like environment.
Guidance information for assessment	

Range Statement

Materials	<p>Materials include:</p> <ul style="list-style-type: none"> • both materials directly used and also materials which comprise components which are used • materials/resources which may be consumed to make a physical product • materials which may be consumed in delivering a service (e.g. fuel, energy and other consumables)
Design brief	<p>Design brief includes the aims and objectives of the original product design, including:</p> <ul style="list-style-type: none"> • regulatory environment • material specifications • production process • estimated and actual material and energy consumption • budget • timelines • product use and disposal assumptions • market assumptions, including target groups, product image and cost
Sustainability impact	<p>The sustainability impact of a product and process may include:</p> <ul style="list-style-type: none"> • carbon footprint of product and process • current and future availability of raw materials • current and future availability of energy • waste generation and disposal • efficiency of process • the extent to which the production process and product affects the environment, including effects on: <ul style="list-style-type: none"> • climate • quality of local air and water • ecology • noise • relationship with the local and broader community, (e.g. effect of operations on aesthetic appearance, preservation of heritage, and proximity to schools and religious facilities) • extent of regulatory oversight and cost of compliance
Product life cycle	<p>Product life cycle includes:</p> <ul style="list-style-type: none"> • the entire life cycle of a product through design, manufacture, service and disposal

Final use or disposal at end of life	Final use or disposal at end of life covers decisions and actions on: <ul style="list-style-type: none">• reuse for modified or different purpose• recycling of components• disposal
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Unit Sector(s)

Sustainability

Custom Content Section

Not applicable.