



Australian Government

MSS017007 Design for sustainability

Release: 1

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Modification History

Release 1. Supersedes and is equivalent to MSS017007A Design for sustainability.

Application

This unit of competency covers the designing of a new product, or the redesigning of an existing product as a sustainable product or to improve its sustainability. It may be applied to a physical product, a service or some other type of 'product'.

This unit covers the analysis of the benefit received by the consumer and then an examination of how best this benefit can be delivered to maximise both the benefit and the sustainability of this benefit. It includes an analysis of the cradle to grave/cradle to cradle impacts of the product and the various sustainability impacts along the value chain.

This unit will lead to the design specification for a sustainable/more sustainable product. It does not include the implementation of that design.

A manager or senior technologist who has a significant sustainability responsibility work role would typically undertake this. Skills covered by this unit may be applied individually or in a team context.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil

Competency Field

Sustainable operations

Unit Sector

Not applicable

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

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|---|---|---|
| 1 | Define the benefit received by the customer | 1.1 Select an existing or potential new product for analysis.
1.2 Determine who the customers are for the product.
1.3 Determine uses of product by customers.
1.4 Analyse the benefits received by the customer from using the product.
1.5 Define and rank the benefits received.
1.6 Validate benefits in an appropriate manner. |
| 2 | Develop alternative ways of delivering benefit | 2.1 Brainstorm alternative methods of delivering required benefits.
2.2 Brainstorm related benefits which may also be able to be delivered.
2.3 Analyse sustainability impacts of each alternative.
2.4 Consult with relevant stakeholders, as appropriate.
2.5 Rank alternatives by sustainability.
2.6 Prepare an initial business case for top ranked alternatives. |
| 3 | Develop product and process design | 3.1 Develop product design specification for alternatives most likely to be implemented.
3.2 Determine likely production process for alternatives most likely to be implemented.
3.3 Analyse life cycle sustainability for alternatives most likely to be implemented.
3.4 Select alternative to develop.
3.5 Consult with relevant stakeholders, as appropriate. |

		3.6	Confirm selected alternative does deliver key customer benefits.
4	Confirm design for selected alternative	4.1	Develop and document product specification.
		4.2	Develop and document key production process parameters.
		4.3	Consult with relevant stakeholders, as appropriate.
		4.4	Prepare business case for implementing selected alternative.
		4.5	Negotiate solutions to value chain issues caused by changed design.
5	Communicate required responses as appropriate	5.1	Identify what communications are required and to whom.
		5.2	Prepare appropriate reports and recommendations.
		5.3	Pitch reports and recommendations, as appropriate.
		5.4	Brief appropriate persons as required by determined responses.
		5.5	Finalise appropriate recording.

Foundation Skills

This section describes those required skills (language, literacy and numeracy) that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Sustainability incorporates all of

- survival of the ecology/physical environment (to manage the impact of the business to ensure the survival of the physical environment)
- economic viability (efficiency, cost and waste reduction and competitiveness to support survival of the business)
- social sustainability (to manage the impact of the business to ensure its continued survival within the community and the survival of the community).

Product includes one or more of

- physical product
- service
- some other type of product.

Benefit includes consideration of one or more of

- deliverable the customer expects
- location in which it should occur
- timing, duration, frequency and longevity of the deliverable
- value to the customer
- required maintenance and other 'running' inputs
- disposal/replacement required by the customer
- the degree to which the designed product is portable, modular, reusable, recyclable, returnable, easily able to be repaired after malfunction, durable, aesthetics and price.

Alternative methods of delivering benefits include one or more of

- selling a redesigned product
- selling the benefit obtained from the product rather than the product
- selling a combination of physical product and service rather than either
- leasing (or similar) of the above
- providing buy back/take back or similar
- other alternative strategies (e.g. design for reuse, remanufacture, recycling).

Sustainability issues of particular

- particular sensitivities of the local ecology (e.g. endangered species, sensitive local flora/fauna, material scarcity, water

**relevance include
one or more of**

- availability)
- general ecology issues and regulations (e.g. climate change and carbon footprint, pollution control measures)
- particular local social issues (e.g. distortions to the housing market, disruption to local lifestyles)
- general social issues (e.g. corporate citizenship, use or/deterioration to infrastructure)
- particular local economic issues (e.g. cost of capital, profit margins, competition)
- general economic issues (e.g. state of the economy, stage of the business cycle).

**Appropriate
response when
impact cannot be
prevented includes
one or more of**

- capture and storage (e.g. scrubbing) and similar ‘end of pipe’ solutions
- dilution/dispersion and similar techniques which reduce concentration but not amount
- other approaches which meet the sustainability requirements.

Unit Mapping Information

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Links

MSA Training Package Implementation Guides - <http://mskills.org.au/training-packages/info/>