



Australian Government

Department of Education, Employment and Workplace Relations

MSS404053A Use six sigma techniques

Release: 1

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Modification History

New unit, superseding MSACMT453A Use six sigma techniques* - Equivalent

* *New prerequisite MSS404052A Apply statistics to operational processes* superseding MSACMT452A Apply statistics to processes in manufacturing

Unit Descriptor

This unit of competency covers the skills and knowledge required to apply six sigma techniques to improve quality, cost and delivery in operations and other supporting processes in the workplace

Application of the Unit

This unit applies where a statistical-based strategy, such as six sigma will be used to establish current quality, cost and delivery performance and then to investigate and improve all or part of a process. This will be undertaken with other members of the process team.

This unit requires the application of skills associated with using information, problem solving, initiative, enterprise, planning and organising in order to identify an area requiring improvement and develop a measured process to make improvements. The unit covers the application of the Define, Measure, Analyse, Improve, and Control and standardise (DMAIC) process.

Depending on the scale of six sigma implementation in the organisation the following units may also be relevant:

- *MSS404050A Undertake process capability improvements*
- *MSS403002A Ensure process improvements are sustained*
- MSS403010A Facilitate change in an organisation implementing competitive systems and practices
- *MSAPMSUP390A Use structured problem solving tools.*
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Licensing/Regulatory Information

Not applicable.

Pre-Requisites

MSS404052A Apply statistics to operational processes

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

1	Identify an area requiring improvement	1.1	Identify customer needs from process
		1.2	Identify customer benefits delivered by process
		1.3	Identify areas requiring improvement
2	Apply DMAIC process	2.1	Define improvement project
		2.2	Acquire required measurements/data
		2.3	Analyse data and determine possible process improvements
		2.4	Develop and test improvement solutions
		2.5	Control and standardise the improvement
3	Review and confirm improvement	3.1	Determine and document benefits
		3.2	Ensure procedures and other relevant documentation is updated for improved procedure

3.3 Review process data after an appropriate period and confirm the improvement

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

Required skills include:

- interpreting charts and diagrams
- identifying data relevant to improvement project from a variety of sources
- analysing data using statistical methods
- solving problems to root causes
- communicating with other employees to obtain samples/data and to explain processes, results and limits
- determining extent of benefits gained from improvement projects
- identifying relevant documentation for improvement projects and updating, as required

Required knowledge

Required knowledge includes:

- charting methods and formats, such as Pareto charts, fishbone diagrams
- statistical principles and techniques
- acceptance criteria/confidence levels and other relevant limits and criteria for improvement project
- DMAIC methods
- six sigma principles

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Critical aspects for assessment and evidence required to demonstrate competency in this unit	A person who demonstrates competency in this unit must be able to provide evidence of the ability to: • identify current and target customer needs and benefits for an area and improvement project • use DMAIC process for an area related improvement project a project
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	- propose test and document improvement solutions - add to or edit organisation documents using standard procedures.
Context of and specific resources for assessment	Assessment of performance must be undertaken in a workplace using or implementing one or more competitive systems and practices. Access may be required to: - workplace procedures and plans relevant to work area - specifications and documentation relating to planned, currently being implemented, or implemented changes to work processes and procedures relevant to the assessee - documentation and information in relation to production, waste, overheads and hazard control/management - reports from supervisors/managers - case studies and scenarios to assess responses to contingencies.
Method of assessment	A holistic approach should be taken to the assessment. Competence in this unit may be assessed by using a combination of the following to generate evidence: - demonstration in the workplace - workplace projects - suitable simulation - case studies/scenarios (particularly for assessment of contingencies, improvement scenarios, and so on) - targeted questioning - reports from supervisors, peers and colleagues (third-party reports) - portfolio of evidence. In all cases it is expected that practical assessment will be combined with targeted questioning to assess underpinning knowledge. Where applicable, reasonable adjustment must be made to work environments and training situations to accommodate ethnicity, age, gender, demographics and disability.
Guidance information for assessment	Assessment processes and techniques must be culturally appropriate and appropriate to the oracy, language and literacy capacity of the candidate and the work being performed.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Competitive systems and practices	Competitive systems and practices may include, but are not limited to: • lean operations • agile operations • preventative and predictive maintenance approaches • monitoring and data gathering systems, such as Systems Control and Data Acquisition (SCADA) software, Enterprise Resource Planning (ERP) systems, Materials Resource Planning (MRP) and proprietary systems • statistical process control systems ,including six sigma and three sigma • Just in Time (JIT), kanban and other pull-related operations control systems • supply, value, and demand chain monitoring and analysis • 5S • continuous improvement (kaizen) • breakthrough improvement (kaizen blitz) • cause/effect diagrams • overall equipment effectiveness (OEE) • takt time • process mapping • problem solving • run charts • standard procedures • current reality tree Competitive systems and practices should be interpreted so as to take into account: • the stage of implementation of competitive systems and practices • the size of the enterprise • the work organisation, culture, regulatory
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	environment and the industry sector
DMAIC	DMAIC is a structured improvement process involving the following stages: • define • measure • analyse • improve • control and standardise
Define	Definition of the project to include: • 'as is' process map • defining benefits from the project • problem statement • goal statement • project scope
Measurements	Measurements may include: • identification of key measures/attributes • sampling schedule for project • variations and limits
Analyse	Analyse may include: • statistical analysis of data • root cause analysis • use of various problem solving/analysis tools
Improvement	Improvement may include: • generation and testing of improvements • selection of appropriate improvements
Control and standardise	Control and standardise may include: • documenting • transferring ownership of improved process

Unit Sector(s)

Unit sector

Competitive systems and practices

Custom Content Section

Not applicable.