



Australian Government

MSS405053 Manage application of six sigma for process control and improvement

Release: 2

MSS405053 Manage application of six sigma for process control and improvement

Modification History

Release 2. Updated pre-requisite code

Release 1. Supersedes and is equivalent to MSS405053A Manage application of six sigma for process control and improvement

Application

This unit of competency covers the skills and knowledge required to manage six sigma (or similar statistics based approach) in the workplace for the purposes of process control and process improvement.

This unit covers the skills and knowledge needed by a technical expert in managing the application of six sigma in an organisation in order to minimise defects and make improvements to processes and/or products. Depending on the need the expert will apply six sigma processes themselves or work with, and advise, other employees in applying six sigma processes.

This unit requires the application of skills associated with problem solving, initiative, enterprise, planning and organising in order to apply six sigma in the workplace. This unit requires skill in gathering, analysing and applying information and data.

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

Pre-requisite Unit

MSS404054 Apply statistics to operational processes

Competency Field

Competitive systems and practices

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.

- | | | | |
|---|---|-----|--|
| 1 | Review process data | 1.1 | Confirm area of responsibility/study with executive leaders and other stakeholders. |
| | | 1.2 | Review statistical process control (SPC), process capability and other relevant data for area of responsibility/study. |
| | | 1.3 | Identify shifts in process performance and processes requiring improvement. |
| | | 1.4 | Quantify the shifts in performance which have occurred or which are desired. |
| | | 1.5 | Determine cost of shift in performance and cost of intervention. |
| | | 1.6 | Identify improvement priorities and degree of intervention. |
| 2 | Apply define, measure, analyse, improve, and control and standardise (DMAIC) process to priority areas | 2.1 | Define improvement project. |
| | | 2.2 | Determine if a six sigma project team is to be established or project undertaken individually. |
| | | 2.3 | Determine metrics and acquire initial data. |
| | | 2.4 | Analyse data and determine possible causes of performance shifts/process improvements. |
| | | 2.5 | Develop and trial improvement solutions. |
| | | 2.6 | Control and standardise the improvement. |
| 3 | Establish/review control strategies | 3.1 | Determine sampling schedule. |
| | | 3.2 | Analyse data to determine process capability. |
| | | 3.3 | Develop process control strategy. |
| | | 3.4 | Confirm strategy with all stakeholders. |
| | | 3.5 | Identify skills required to implement and monitor process control strategy. |
| | | 3.6 | Arrange training, where required, for employees in skills and techniques needed for process control strategy. |

- | | | | |
|---|---------------------------------------|-----|---|
| 4 | Review and confirm improvement | 4.1 | Calculate and document benefits. |
| | | 4.2 | Ensure procedures and other relevant documentation is updated for improved procedure. |
| | | 4.3 | Review process data after an appropriate period and confirm the improvement. |

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.

- Competitive systems and practices include one or more of:**
- lean operations
 - agile operations
 - preventative and predictive maintenance approaches
 - 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.

- DMAIC includes all of:**
- define
 - measure
 - analyse
 - improve
 - control and standardise.
- Definition of the project includes all of:**
- completed, verified and validated as in process map
 - suppliers, inputs, process, outputs, customers (SIPOC) diagram
 - discrepancies to current 'as is' process map
 - formation and briefing of project team
 - defining business case for project
 - problem statement
 - goal statement
 - project scope.
- Metrics includes one or more of:**
- key measures/attributes
 - sampling schedule for project
 - defect rate
 - other metrics required by the business.
- Analyse includes one or more of:**
- statistical analysis of data
 - root cause analysis (RCA)
 - failure mode and effects analysis (FMEA)
 - use of various other problem solving/analysis tools.
- Improve includes one or more of:**
- generating and testing of improvements
 - selecting appropriate improvements.
- Control and standardise includes all of:**
- documenting (in organisation approved format) outcomes and procedures for standardisation
 - transferring ownership of improved process.
- Sampling schedule includes one or more of:**
- sampling frequency
 - type of sample/sample method
 - sample location/type
 - type of test/data to be collected.

Process control strategy includes one or more of:

- degree of intervention/rules for resets
- SPC tools to be used.

Unit Mapping Information

Release 2. Equivalent to Release 1

Release 1. Supersedes and is equivalent to MSS405053A Manage application of six sigma for process control and improvement

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5b04f318-804f-4dc0-9463-c3fb9a3fe998>

Assessment Requirements for MSS405053 Manage application of six sigma for process control and improvement

Modification History

Release 2. Updated pre-requisite code

Release 1. Supersedes and is equivalent to MSS405053A Manage application of six sigma for process control and improvement

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include the ability to manage six sigma for process control and improvement in the workplace for one (1) or more processes to:

- review process data to identify improvement priorities and degree of intervention
- apply DMAIC to make and then standardise improvements
- collect and analyse data to confirm improvement
- determine and review improvements obtained.

Knowledge Evidence

Must provide evidence that demonstrates sufficient knowledge to interact with relevant personnel and be able to manage the application of six sigma (or similar), including knowledge of:

- identification and definition of six sigma (or similar) projects
- sampling, data collection, and analysis
- determining quantifiable benefits
- DMAIC methodology and application
- charting, including Pareto charts, fishbone diagrams, PICK charts, run charts and scatter diagrams
- statistical principles and analysis, including confidence limits, analysis of variance, frequency distribution tables, histograms, arithmetic mean, median, mode, standard deviation, range, interquartile range, correlation and dependence
- acceptance criteria/confidence levels
- failure mode and effects analysis (FMEA)
- process mapping
- suppliers, inputs, process, outputs, customers (SIPOC) mapping
- types of data (e.g. discrete/continuous/attributes) and their use in six sigma.

Assessment Conditions

- The unit should be assessed holistically and the judgement of competence shall be based on a holistic assessment of the evidence.

- The collection of performance evidence:
 - should occur over a range of situations which include typical disruptions to normal, smooth operation of the workplace
 - will typically include a third-party (e.g. supervisor, 360 degree) report focussing on consistent performance and problem recognition and solving. A third-party report must be prepared by someone who has a direct, relevant, current relationship with the person being assessed and who is in a position to form a judgement on workplace performance relevant to the unit of competency
 - must include either a six sigma project(s) or evidence of day-to-day managing of the application of six sigma in own workplace.
- Assessment should occur in operational workplace situations.
- Knowledge evidence may be collected concurrently with performance evidence (provided a record is kept) or through an independent process such as workbooks, written assessments or interviews (provided a record is kept).
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.
- Conditions for assessment must include access to all tools, equipment, materials and documentation required, including relevant workplace procedures, product and manufacturing specifications associated with this unit.
- Foundation skills are integral to competent performance of the unit and should not be assessed separately.
- Assessors must satisfy the assessor competency requirements that are in place at the time of the assessment as set by the VET regulator.
- The assessor must demonstrate both technical competency and currency.
- Technical competence can be demonstrated through:
 - relevant VET or other qualification/Statement of Attainment AND/OR
 - relevant workplace experience
- Currency can be demonstrated through:
 - performing the competency being assessed as part of current employment OR
 - having consulted with an organisation providing relevant environmental monitoring, management or technology services about performing the competency being assessed within the last twelve months.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5b04f318-804f-4dc0-9463-c3fb9a3fe998>