



Australian Government

MSS404052 Apply statistics to operational processes

Release: 1

MSS404052 Apply statistics to operational processes

Modification History

Release 1. Supersedes and is equivalent to MSS404052A Apply statistics to operational processes

Application

This unit covers the ability to gather and analyse process data to support the control of processes and operations. It includes interpretation of sampling procedures, frequency distributions, random and non-random variations in data/control charts; use of control limits to determine whether or not monitored processes are in control; and communicating this information to others.

This unit applies to a person working in an organisation applying statistical process control on processes or operations. The statistical process control will usually be used to monitor the processes or operations and determine when action needs to be taken. The appropriate action will then be taken in accordance with standard procedures.

This unit primarily requires the application of skills associated with gathering and analysing data and communicating statistical information to others. This unit also has a strong emphasis on problem solving, initiative and enterprise, planning and organising, and self-management to solve problems and manage processes.

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

Pre-requisite Unit

Nil

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	Collect process data	1.1	Interpret sampling scheme.
		1.2	Obtain measurements in accordance with standard

- sampling procedures.
- 1.3 Handle data in accordance with procedures.
- 2 **Interpret data**
 - 2.1 Plot data on appropriate control chart.
 - 2.2 Distinguish between random and non-random patterns of results.
 - 2.3 Identify results outside the control limits.
 - 2.4 Recognise situations requiring action.
 - 2.5 Take action in accordance with procedures.
 - 2.6 Determine cost of non-conformance.
- 3 **Calculate control limits**
 - 3.1 Consult relevant stakeholders to determine appropriate limits.
 - 3.2 Use relevant methods to calculate/revise control limits.
 - 3.3 Plot limits on control chart and complete other records in accordance with procedures.
 - 3.4 Explain impact of limit to relevant stakeholders.

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

- lean operations
- agile operations

more of:

- 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.

Sampling schemes include one or more of:

- sampling for attributes or sampling for variables
- batch, continuous or custom made products
- type of sample
- size of sample
- number of items/samples
- number/type of measurements to be done on each sample
- timing of sampling
- location of sampling points
- sampling equipment
- measurement/testing equipment/methods.

Checking, analysing and storing data includes one or more of:

- calculating means, ranges, mean of means and standard deviations (using appropriate calculation aids)
- entering data into a software package
- recording data either in writing or electronically
- other required manipulations of the data.

Control charts include one or more of:

- run
- tally
- mean/range
- attributes
- other relevant charts.

Variations include all of:

- random variations for which no cause can be found
- non-random variations for which a cause can be found and so the cause of the variation eliminated (also called identifiable cause, assignable cause or special cause)
- non-random variations used to predict possible breaches of the control limits.

Limits include one or more of:

- control limits (also referred to as process capability) within which the process will operate if it is 'under control'
- appropriate limits: 1 sigma warning limits, 2 sigma warning limits, 3 sigma control limits, and 6 sigma limits.

Costs of non-conformance include one or more of:

- reprocessing/rework
- expediting
- unplanned service
- excess inventory
- complaint handline
- downtime
- returns
- scrap
- labour costs
- material costs
- infrastructure costs/overhead
- utility costs.

Procedures (written, verbal, visual, computer based, etc.) include one or any combination of:

- work instructions
- standard operating procedures (SOPs)
- safe work method statements
- formulas/recipes
- batch sheets
- temporary instructions
- any similar instructions provided for the smooth running of the process.

Unit Mapping Information

Release 1. Supersedes and is equivalent to MSS404052A Apply statistics to operational processes

Links

Companion Volume implementation guides are found in VETNet -

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