



Australian Government

Department of Education, Employment and Workplace Relations

MSS407003A Analyse process changes

Release: 1

MSS407003A Analyse process changes

Modification History

New unit, superseding MSACMG703A Analyse process changes - Equivalent

Unit Descriptor

This unit of competency covers the skills and knowledge required to quantitatively analyse past changes made in an organisation's the operations, systems, process or environment to ensure the quantum of expected change has been achieved and that gains are maintained and are used as a basis for further gains.

The unit includes statistical and other mathematical analysis of data, methods for capturing data on implemented changes (quantitative and qualitative) and producing useful information from this data. It includes consultation with stakeholders both for data validation and consensus decision-making for future improvements.

Application of the Unit

This unit applies to team leaders, technical experts and people with a similar sphere of influence/scope of authority and responsibility who are already have a knowledge of statistics used in managing operations and of process capability improvement and some knowledge of factorial design, the selection and analysis of appropriate metrics, and the discrimination between valid and invalid interpretations of data. Where this is not the case *MSS404050A Undertake process capability improvements* and *MSS404052A Apply statistics to operational processes* may be completed to supply the necessary statistical skills.

If this unit is being applied to a complex change process or a complex operations process, it may be an advantage to have completed *MSS405052A Design an experiment* before completing this unit. Where this unit is being applied in a six sigma environment then knowledge and skill in six sigma techniques may also be an advantage. *MSS405053A Manage application of six sigma for process control and improvement* can be completed to supply these skills.

The unit applies to reviews of both intended and unintended consequences of change and the effectiveness of the implementation of the change. This unit is not intended to be applied to a technical or engineering review of a major capital expenditure or similar.

This unit takes a largely quantitative approach to the review. For skills associated with a more qualitative review refer to *MSS407005A Undertake a qualitative review of a process change*. This unit may also be applied to service organisations applying competitive systems and practices principles.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Not applicable.

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

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| 1 | Analyse a change | 1.1 | Identify changes which have occurred |
| | | 1.2 | Select a change or group of related changes to analyse |
| | | 1.3 | Determine the initiation of the selected change |
| | | 1.4 | Identify relevant metrics and predicted values for these metrics |
| | | 1.5 | Gather data for these metrics prior to the change |
| | | 1.6 | Gather data and information on the implementation of the change |
| | | 1.7 | Gather data for these metrics after the change |
| | | 1.8 | Survey all key metrics and identify any where variations may correlate with the change being analysed |
| | | 1.9 | Discuss results of change with key stakeholders and identify other possible (qualitative or quantitative) results of the change |
| | | 1.10 | Analyse this data to determine the results of the change |

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| 2 | Review results of change with stakeholders | 2.1 | Identify trends over time in all relevant metrics |
| | | 2.2 | Analyse correlated metrics to determine causal relationship |
| | | 2.3 | Audit health, safety and environment (HSE) impacts as a result of the change |
| | | 2.4 | Present information in a form understandable by stakeholders |
| | | 2.5 | Discuss analysed information with relevant stakeholders |
| | | 2.6 | Modify information based on stakeholder input, as required |
| | | 2.7 | Develop a consensus view of the result of the change which is supported by the information available |
| | | 2.8 | Validate the consensus view with stakeholders |
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| 3 | Identify future improvements | 3.1 | Discuss lessons learned from the change with stakeholders |
| | | 3.2 | Capture key knowledge in accordance with systems and procedures |
| | | 3.3 | Identify future improvements in collaboration with team members |
| | | 3.4 | Validate identified changes with stakeholders |
| | | 3.5 | Obtain sign off from process/system owner |
| | | 3.6 | Start the process for implementing future improvements |
| | | 3.7 | Check that the planned improvements are occurring |
| | | 3.8 | Take action to sustain improvement by standardising |

Required Skills and Knowledge

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

Required skills

Required skills include:

- researching past performance of plant, operations, products and procedures, including metrics used
- identifying trends, causal relationships and correlations in metrics
- communicating and explaining quantitative data with others across a range of numeracy and literacy levels
- analysing views and reasons put forward by others on past performance and relating to evidence
- analysing views and reasons put forward by others for future changes and improvements and form recommendations
- identifying key HSE strategies and risks for area of responsibility and identifying sources of expert assistance
- preparing submissions and presenting case for future changes

Required knowledge

Required knowledge includes:

- competitive systems and practices principles, processes and techniques
- organisational goals, products and processes
- processes and procedures for continuous improvement in the workplace
- statistical process control (SPC) and principles
- methods of determining the impact of a change using quantitative analysis of process data, including advanced statistical/mathematical analysis and basic qualitative techniques
- organisation metrics
- sources of data (actual and possible) within the organisation and the value stream
- range of typical metrics, their applications and limitations

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.

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| <p>Critical aspects for assessment and evidence required to demonstrate competency in this unit</p> | <p>A person who demonstrates competency in this unit must be able to provide evidence of the ability to:</p> <ul style="list-style-type: none"> • analyse process changes • identify changes • gather data and information over a period and range that will provide a valid basis for analysis • select and use appropriate data analysis tools • present information in a suitable form • obtain a consensus view of the results of the change • determine the lessons to be learned and future improvements to be undertaken. |
| <p>Context of and specific resources for assessment</p> | <p>Assessment of performance must be undertaken in a workplace using or implementing one or more competitive systems and practices.</p> <p>Access may be required to:</p> <ul style="list-style-type: none"> • 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. |
| <p>Method of assessment</p> | <p>A holistic approach should be taken to the assessment.</p> <p>Competence in this unit may be assessed by using a combination of the following to generate evidence:</p> <ul style="list-style-type: none"> • 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. <p>In all cases it is expected that practical assessment will be combined with targeted questioning to assess underpinning knowledge.</p> |

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| | 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 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.

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| Competitive systems and practices | <p>Competitive systems and practices may include, but are not limited to:</p> <ul style="list-style-type: none"> • 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 |
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| | <ul style="list-style-type: none"> • standard procedures • current reality tree <p>Competitive systems and practices should be interpreted so as to take into account:</p> <ul style="list-style-type: none"> • the stage of implementation of competitive systems and practices • the size of the enterprise • the work organisation, culture, regulatory environment and the industry sector |
| Codes of practice/standards | Where changes include areas covered by industry codes of practice, and/or Australian/international standards, the latest version must be used |
| Gather prior data | Where all suitable data was not collected prior to the change a suitable proxy for the data will be needed |
| HSE | All changes implemented are expected to be at least neutral, or preferably beneficial, in their impact on HSE |
| Change | <p>Changes may:</p> <ul style="list-style-type: none"> • be to plant, operations, products, procedures or practice • arise from continuous improvement (or an improvement event/project) or implementing new products, technology or systems • may have been intended to make an improvement or to implement new products, technology or systems • include the implementation of a change <p>Changes do not include an engineering review of a major capital expenditure or similar review</p> |
| Initiation of change | Changes need to be identified as either deliberately or not deliberately initiated. Where a change was not deliberately initiated then the causal factors for the change need to be identified |
| Correlated metrics | <p>Correlated metrics include:</p> <ul style="list-style-type: none"> • any metric which appears to show a chronological correlation with the change being analysed. These metrics need to be examined to determine if the change has a causal relationship or is simply coincidental |
| Presentation of information | <p>Information may be presented:</p> <ul style="list-style-type: none"> • in appropriate visual forms (e.g. graphs, charts and |

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| | <p>noticeboards</p> <ul style="list-style-type: none"> verbally or other forms able to be understood and used by stakeholders |
| Stakeholders | <p>Stakeholders may include:</p> <ul style="list-style-type: none"> work team members value stream members managers |
| Results of change | <p>The change results may include:</p> <ul style="list-style-type: none"> an initial improvement followed by a return to previous performance continued improvement continued detriment or other variations over time |
| Improvements | <p>Improvements may:</p> <ul style="list-style-type: none"> be to operations, process, plant, procedures or practice include changes to ensure positive benefits are maintained |
| Sustaining improvement | <p>Improvement may be sustained by including it in:</p> <ul style="list-style-type: none"> standard procedures and work instructions standard practice other relevant documents and practices |
| Team leader | <p>Team leader may include:</p> <ul style="list-style-type: none"> any person who may have either a permanent or an ad hoc role in facilitating the function of a team in a workplace |

Unit Sector(s)

Unit sector

Competitive systems and practices

Custom Content Section

Not applicable.