

SEMBIT3-17 - SQA Unit Code F9HV 04

Applying Six Sigma methodology to a project



Overview

This unit covers the competences required for applying a structured Six Sigma methodology to a project. It involves identifying the Six Sigma organisational infrastructure, roles and responsibilities and business- specific metrics that will apply. These will include financial, quality and process aspects of the project. You will be expected to identify areas where the Six Sigma tools, techniques and activities can be applied, in order to demonstrate those factors that are critical to the customer, business and process.

Contribution to the identification of the cost of poor quality by identifying the defects per million opportunities (DPMO) is a major part of this unit.

Your responsibilities will require you to comply with organisational policy and procedures for the activities undertaken, and to report any problems with the activities that you cannot solve, or that are outside your responsibility, to the relevant authority. You will need to ensure that all the five phases of Six Sigma are utilised within the project (such as define, measure, analyse, improve and control), and to complete all necessary project documentation accurately and legibly. You will be expected to take full responsibility for your own actions within the activity, and for the quality and accuracy of the work that you produce.

Your underpinning knowledge will provide a good understanding of the application Six Sigma methodology, and will provide an informed approach to the techniques and procedures used. You will need to understand the principles and application of Six Sigma methodology, in adequate depth to provide a sound basis for carrying out the activities to the required criteria.

Applying safe working practices will be a key issue throughout.

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Performance criteria

You must be able to:

- P1 work safely at all times, complying with health and safety and other relevant regulations and guidelines
- P2 apply the structured Six Sigma methodology and approach to the selected project
- P3 identify the Six Sigma organisational infrastructure, roles and responsibilities and business-specific metrics that would apply
- P4 identify areas where the Six Sigma tools, techniques and activities can be applied, and demonstrate the need to measure those factors that are critical to quality characteristic (CTQC) for the customer, business and process
- P5 contribute to the identification of the cost of poor quality, by identifying the defects per million opportunities (DPMO)
- P6 relate defects per million opportunities to the sigma score, and identify the gap to Six Sigma performance

Knowledge and understanding

You need to know and understand:

- K1 the Six Sigma methodology, and how it is applied to a project
- K2 the Six Sigma infrastructure and philosophy
- K3 the benefits that will arise from a Six Sigma project
- K4 the 'parts per million opportunities' goal of Six Sigma
- K5 the calculation of defects per million opportunities (DPMO)
- K6 the five phases of Six Sigma that are applied to a project
- K7 how to define a critical to quality characteristic (CTQC)
- K8 how non-value added activity can serve as a roadblock for achieving Zero Defect
- K9 how to define an 'opportunity for defect'
- K10 the roles and responsibilities of the key players in the Six Sigma process (Champion, Mentor, Master Black Belt, Black Belt, Green Belt and Yellow Belt)
- K11 the relationship between key process input variables (KPIV) and key process output variables (KPOV) (using the equation $Y=f(x)$)
- K12 the extent of your own authority, and to whom you should report in the event of problems that you cannot resolve

Additional Information

Scope/range related to performance criteria

You must be able to:

1. identify and participate in Six Sigma projects which cover **two** the following:
 - 1.1. manufacturing
 - 1.2. quality level
 - 1.3. administration
2. utilise the **five** phases of Six Sigma within the project:
 - 2.1. define
 - 2.2. measure
 - 2.3. analyse
 - 2.4. improve
 - 2.5. control
3. contribute to producing a metric chart for the Six Sigma projects undertaken
 - 3.1. financial
 - 3.2. quality
 - 3.3. process
4. identify the critical to quality characteristic (CTQC) of the projects, to include:
 - 4.1. cost
 - 4.2. quality
 - 4.3. delivery
5. produce a diagram (family tree) of the Six Sigma organisational infrastructure and the roles of:
 - 5.1. Champion
 - 5.2. Mentor
 - 5.3. Yellow Belt
 - 5.4. Green Belt
 - 5.5. Black Belt
 - 5.6. Master Black Belt

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