

Six Sigma Methodology – What is DMAIC

Six Sigma is a structured approach for problem solving. If we want to have a quick fix solution to any problem, Six sigma is not the right methodology. Six sigma is a systematic problem solving approach. Any improvement project taken up in a Six sigma methodology has to necessarily pass through 5 distinct phases – Define, Measure, Analyse, Improve and Control, each lasting for 4-8 weeks. This is called DMAIC Methodology. DMAIC methodology is used to improve existing products and existing processes.

The activities in each phase are listed below



Define:

In this phase we listen to the Voice of Customer (VOC) through customer feedback or customer satisfaction analysis and understand their pain points. Then relate their pains to a measurable metric like % on time delivery or % adherence to Turn Around Time etc. Then we quantify the current performance of the metric, fix the target for improvement and by when we want to achieve the target.

We prepare the business case for taking up the project; define the scope of the project by clearly defining the boundaries of the process identified for improvement. We select the project leader and the project team, prepare the project charter and get it approved by senior management. We also prepare a high level process mapping clearly identifying the process for improvement



Measure:

In the Measure phase we define the fool proof Operational Definition for the metric identified for improvement, do a Measurement System Analysis to ensure measurement is accurate, develop a data collection plan and do a micro level process analysis to identify areas for improvement. We collect accurate data as per the data collection plan. We also calculate the current process performance in terms of sigma level. The improvement in the metric after the project completion is calculated and validated against this base line performance.

Analyse:

In the Analyse phase, we use statistical tools to analyse the data and identify the critical root causes significantly contributing to the variation in the metric for improvement. The output from the Analyse phase is the list of 2-5 statistically validated critical root causes for the problem

Improve:

In the Improve phase we develop the potential solutions for the critical root causes identified in the analyse phase, look for alternate solutions and select the best, do a Failure Mode Effect Analysis (FMEA) to take proactive action to minimize any adverse effect of implementing the proposed solutions, do pilot testing of improvement actions, check whether the project objective is achieved, calculate the potential savings and prepare an implementation plan for institutionalizing the improvement.

Control:

In the Control phase we implement the action plan prepared during the improve phase to institutionalize the improvements, closely monitor and control the critical inputs and the output metric in a narrow range by using control charts to sustain improvements, prepare a control plan indicating actions to be taken in case we are unable to maintain variation in critical inputs in a narrow range, complete the documentation and training and hand over the improved process to the process owner