

Lean Six Sigma DMAIC Roadmap

Purpose		Key Tools				Key Outputs
Define	To establish a quantified problem statement, objective and business case that will become the foundation to your Six Sigma project. Conduct stakeholder analysis, select team members and kick-off your project.	<p><u>Primary Metric</u></p>	<p><u>Process Map</u></p>	<p><u>Project Charter</u></p>	<p><u>Project Plan</u></p>	<ul style="list-style-type: none"> * Process Map * Gather VOC * Translate VOC to CTQ's * QFD/HOQ * COPQ * Primary & Secondary Metrics * Establish Project Charter * Stakeholder Analysis * Team Selection * Project Plan
		<p><u>C&E</u></p>	<p><u>SIPOC</u></p>	<p><u>FMEA</u></p>	<p><u>Cpk</u></p>	<ul style="list-style-type: none"> * Early Y=f(x) Hypothesis * Detailed Process Map * SIPOC * Cause & Effect Diagram * Cause & Effect Matrix * FMEA * Basic Statistics * Normality Test * Capability Analysis * Gage R&R
Measure	Refine your understanding of the process. Assess process capability relative to customer specifications. Validate measurement systems. Brainstorm potential x's.	<p><u>Normality Test</u></p>	<p><u>ANOVA</u></p>	<p><u>2 Sample t-test</u></p>	<p><u>Equal Variances</u></p>	<ul style="list-style-type: none"> * Narrowed Y=f(x) * 1 & 2 Sample t-tests * 1 & 2 Proportions tests * Equal variance tests * Normality tests * ANOVA * Moods Median * Mann Whitney * Paired t-test * Chi-Squared test
		<p><u>Pugh Matrix</u></p>	<p><u>Linear Regression</u></p>	<p><u>Binary Logistic Regression</u></p>	<p><u>DOE</u></p>	<ul style="list-style-type: none"> * Refined Y=f(x) * Pugh Matrix * Correlation * Simple Linear Regression * Multiple Linear Regression * Binary Logistic Regression * Full Factorial DOE * Fractional Factorial DOE
Analyze	Conduct data collection and planned studies in order to eliminate non-critical x's and validate critical x's. Establish a stronger and quantified Y=f(x) equation.	<p><u>Control Plan</u></p>	<p><u>SOP's</u></p>	<p><u>Communication Plan</u></p>	<p><u>SPC</u></p>	<ul style="list-style-type: none"> * Control Plan * Training Plan * Refined FMEA * Communication Plan * Standard Operating Procedures * Five-S Audit * Poke Yoke * Visual Controls * Statistical Process Control
		<p><u>Control Plan</u></p>	<p><u>SOP's</u></p>	<p><u>Communication Plan</u></p>	<p><u>SPC</u></p>	<ul style="list-style-type: none"> * Control Plan * Training Plan * Refined FMEA * Communication Plan * Standard Operating Procedures * Five-S Audit * Poke Yoke * Visual Controls * Statistical Process Control