The Complete Program on Lean Six Sigma Green Belt Methods

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Introduction:

Six Sigma is the comprehensive business improvement strategy made famous by organizations such as Motorola, General Electric, Honeywell and others, which has been used to generate significant improvements in business performance. Six Sigma is defined as “A comprehensive and flexible system for achieving, sustaining and maximizing business success. Six Sigma is uniquely driven by close understanding of customer needs, disciplined use of facts, data and statistical analysis, and diligent attention to managing, improving and reinventing business processes. Lean focuses on waste reduction, maximization of value and building a culture in which continuous improvement and excellence becomes everyone's responsibility. Combining Lean and Six Sigma provides a powerful methodology for embedding improvement and excellence into any organization’s core values. Lean Six Sigma is increasingly being adopted worldwide in all industries and in both the public and private sectors.

It is a disciplined process focused on delivering near perfect products and services. It is based on a structured methodology for continuous improvement, that can be used to improve any process in any business and through its application over time, is an enabler of cultural change that changes the way organizations work and the way they think. Lean Six Sigma is implemented through team members qualified to the Green Belt level identifying and actioning improvement projects using team based approaches. They are supported by more highly trained “improvement experts” qualified to the Black Belt level.

This course introduces participants to all of the core concepts underpinning the Lean Six Sigma approach to implementing a business improvement oriented culture and systems in organizations, and how these are used to improve customer satisfaction, process performance, and enhance competitive advantage and business results. In

Lean Six Sigma organizations, it is the Green Belts who lead and contribute to the majority of improvement teams undertaking the improvement projects that will make continuous improvement through Lean Six Sigma a key element of achieving and maintaining operational excellence. The course will provide participants the level of knowledge and skill required to achieve accreditation at the Green Belt level.

Who Should Attend?

Quality Managers, Quality Assurance Engineers/Officials, Quality Engineers, Quality Improvement Professionals, Manufacturing/Process Engineers Project Managers, Corporate Managers, Executive Managers, Senior Managers, Middle Managers, Junior Managers, Human Resource Managers, Board of Directors, Entrepreneurs, Production Managers, Production Supervisors, Product Engineers, Inspectors, Line Leaders, Production Operators, Customer Service Professionals, Training Managers, Practitioners in the field of Quality Management, all those who are engaged in quality management implementation and improvement of organizational performance, those with an interest in quality management systems, those starting their career in quality management, staff who are involved in influencing, formulating or supporting the long term planning and strategy of the quality department or organization, as well as those who are responsible for linking, measuring and improving the performance of others

Course Objectives:

By the end of this course delegates will be able to:

- A complete coverage of all Lean methods and technique
- More detailed and advanced understanding of the DMAIC and DMADV process
- Thorough understanding of measurement and key data analysis technique aimed at understanding process performance, problem solving and root cause analysis

- Working knowledge of the Failure Modes and Effects Analysis Technique
- The “Wrestling with Jellyfish” methodology for dealing with intangible problems
- Be able to successfully execute and implement projects using each of the methodologies covered in the course and be able to correctly decide which the most appropriate methodology for each situation is.

Course Outline:

Introduction and Foundation Concepts

- Introduction to Lean Six Sigma
- Roles and Responsibilities
- Linking Improvement to Strategy
- Selecting the Right Projects

The Define Phase Detail

- Define Phase Overview
- Identifying Opportunities
- The Three Voices of Define
- The Voice of the Business
- The Voice of the Customer
- The Voice of the Process

The Measure Phase Detail

- Determining What to Measure
- The Y=f(x) Relationship
- The Generic Process Measurement Scorecard
- Leading and Lag Indicators
- Monitoring and Diagnostic Measures
- Critical to Quality Tree
- Measurement Assessment Tree
- Developing Operational Definitions

- Measurement System Analysis

The Measure Phase Detail (continued)

- Understanding the Measures
- The Funnel Experiment/Simulation
- Normalisation
- Populations and Samples
- Sampling and Bias
- Types of Data
- Collecting and Displaying Data
- Checksheets and Pareto Charts
- The Pareto Principle
- Dot plots, Histograms & Run Charts
- Developing Descriptive Measures of Data
- Measures of Location - Mean/Median/Mode
- Measure of Spread - Range, Standard Deviation, IQR
- Box Plots and test for Normality

Understanding Variation

- Common and Special Causes
- The Normal Distribution
- Quantifying Process Performance
- The Control Chart Concept
- Stable and Unstable Processes
- Process Improvement through Variation Reduction
- The Shewart Tests
- Introduction to Statistical Process Control

Assessing Process Performance

- Process Capability
- The Hidden Factory

- Yield, First Pass Yield and Final Throughput Yield
- Defects and Defects Per Million Opportunities (DPMO)
- Calculating Sigma Levels/Sigma Rating
- Lean Measures

Measure Phase Tollgate Review

- The Analyse Phase Detail
- Sources of Variation and Root Cause Analysis
- Root Causes Analysis
- Determining Sources of Variation (SOV)
- Data Analysis vs Process Analysis
- The 5-Why's Technique
- Disaggregation/Stratification of Data
- Fishbone Diagram Revisited
- The Cause and Effect Matrix
- Process Complexity Analysis/Failure Mapping
- Process Deployment Chart

The Analyse Phase Detail 2

- Sources of Variation and Root Cause Analysis
- Root Causes Analysis
- Determining Sources of Variation (SOV)
- Structured Analytical Tools and Frameworks
- Data Analysis vs Process Analysis
- The 5-Why's Technique
- Fishbone Diagram Revisited
- The Cause and Effect Matrix
- Disaggregation/Stratification of Data
- Process Analysis
- Process Complexity Analysis/Failure Mapping

- Process Deployment Chart
- Verification Tools
- Failure Modes and Effects Analysis

The Analyse Phase Detail 3

- Problem Solving for Intangible and Conceptual Problems
- Affinity Diagram
- Relationship Diagram
- Systematic Diagram
- Allocations Matrix
- Lean Analysis Techniques
- Process Value Stream Analysis/Current State
- Toyota's 4 Rules
- Flow Analysis - Time Traps and Contraints
- Waste Analysis
- Lean Lenses
- Analysis Phase Tollgate Review

The Improve Phase Detail 1

- Generating Potential Solutions
- Fishbone Diagram applied to improvement
- Systematic Diagram applied to improvement
- Process Improvement Checklist
- Technology Enablement
- Failure Modes and Effects Analysis

The Improve Phase Detail 2

- Lean approaches to Improve
- Creating Process Stability
- Toyota's Four Rules
- 5-S

- Poka-Yoke and Mistake-Proofing
- Standardized Work
- Kaizen
- Solution Assessment and Selection
- Process Modelling
- Potential Solutions Matrix
- Decision Matrix
- Implementation Planning
- Simulation and Piloting
- Barriers and Aids Analysis
- Qualitative Risk Analysis
- Introduction to Design for Six Sigma
- Improve Phase Tollgate Review
- Control Phase Detail
- The Process Scorecard
- The Process Management and Control System