



**Lean Six Sigma Training/Certification**

This training will cover the Six Sigma green belt training/certification topics (please see [Green Belt Training and Certification](#) to see the details). In addition, the training will address other issues related to Lean and Six Sigma.

**Lean Six Sigma**

- Lean is an approach that seeks to improve flow in the value stream and eliminate waste. *It is about doing things quickly.*
- Six Sigma uses a powerful framework (DMAIC) and simple to advanced statistical tools to uncover root causes of the problem to understand and reduce variation. *It is about doing things right (defect free)*
- Lean is an approach that seeks to improve flow in the value stream and eliminate waste. *It is about doing things quickly.*
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	Lean	Six Sigma
<b>Theory</b>	Reduce waste	Reduce variation
<b>Application guidelines</b>	Identify value Identify value stream Flow Pull Perfection	Define Measure Analyze Improve Control
<b>Focus</b>	Flow	Problem
<b>Assumptions</b>	Waste removal will improve performance. Many small improvements are better than systems analysis	A problem exists  Figures and numbers are valued  System output improves if variation in all process is reduced

## Integrating Lean and Six Sigma

- Companies have reported that bringing the two concepts- Lean and Six Sigma together delivers faster results.
- While the objective of Lean is to create flow and eliminate waste from the process, Six Sigma improves process capability and reduces variation thereby improving quality and reducing cost. If a company just applies Six Sigma, it cannot maximize the potential of the organization. Lean is really an enabler for Six Sigma.
- More and more companies are realizing that it is possible to achieve dramatic improvements in cost, quality, and time by using the above techniques.
- Several companies including Toyota, General Electric, Motorola, and many others have accomplished impressive results using one or the other technique. However, using only one of the above techniques- Lean, Six Sigma, or Design for Six Sigma has limitations.

## Limitations of Lean and Six Sigma

Six Sigma does not address the question of how to optimize the process flow, and the Lean principles do not address the use of advanced statistical tools required to achieve the process capabilities needed to be truly 'lean'.

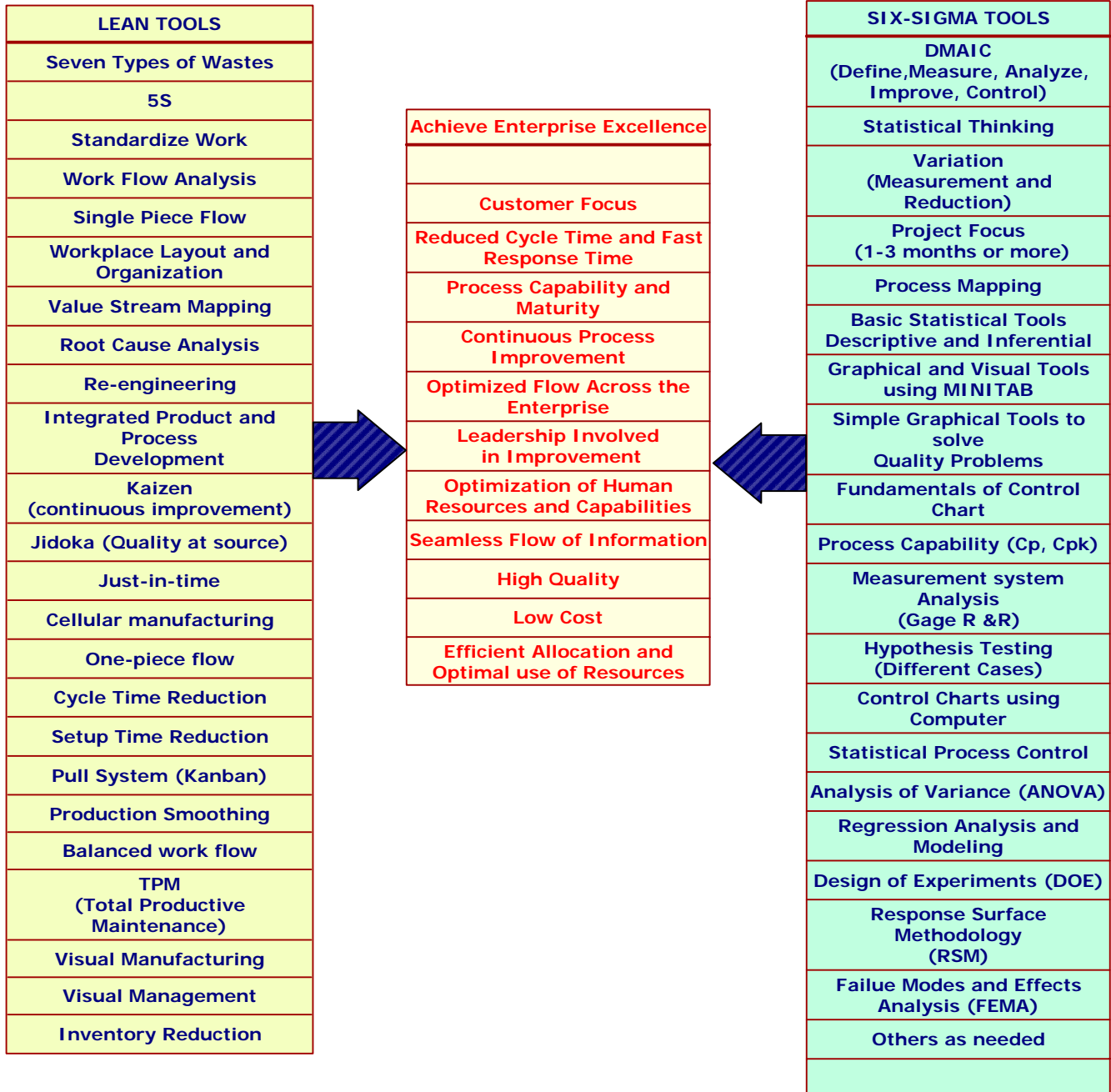
## Achieving Overall Objectives

- A combination of these methodologies (Six sigma, Lean Six Sigma, and DFSS) is needed as an integrated approach to achieve the overall objectives of improving quality, reducing defect and becoming a Six Sigma company, reducing cost, eliminating waste, providing speed and reliability of delivery, incorporating flexibility and innovation in products and services, and meeting or exceeding customer expectations.
- In many cases, it is difficult for companies to select and initiate the right project.

This training will focus on the following Lean and Six Sigma Tools (see the figure below) and how to integrate Lean and Six Sigma to achieve the desired results.

## LEAN and SIX-SIGMA TOOLS

### How they can achieve enterprise excellence?



## Additional Six Sigma Topics Covered

- **Six Sigma: Overview and Business Success**
  - Six Sigma Quality and Reducing Variation in Products and Services
  - Six Sigma Project Team/ Project Selection and Key Factors
  - Why use Lean and Six Sigma
  - Cost of Poor Quality (COPQ) and Cost Classification
  - Cost of Quality in Services/ Prevention vs. Detection System
- **Statistical Basis of Six Sigma**
  - Percent Nonconforming in Parts per Million in Six Sigma Process
  - Improvement in Quality from 3-sigma to 6-sigma
  - Six Sigma Metrics used in Industry
- **Lean Sigma and Six Sigma in Industry and Success**
  - Lean Sigma and Six Sigma Emphasis in Industry
- **Cases and Examples**
  - Details of DMAIC Process: Flow Charts
  - Case Study and Examples on Define, Measure, Analyze, Improve, and Control Phases of Six Sigma
  - Tools used in Lean and Six Sigma