

# Quality Engineering

Manufacturing Process Improvement  
Plant Process Cost/Benefit Analysis

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# Quality Engineering

## Quality Improvement (DMAIC Model)

### Define the Problem

### Measure

Baseline Performance

Document the Process

Validate the Measurement System

### Analyze: Data Collection and Analysis

### Improve:

Design of Experiment

Implementation of Effective Remedy

### Control: Inspection & Control Charts/Trend Analysis

# Quality Engineering

## Quality Planning and Analysis:

Cost of Quality

Marketing Research

Quality Culture

Operations of Quality System

# Continuous Product/Process Improvement

## Fundamentals

### Six Sigma

Reduce Variation

Improving Effectiveness

### Lean Process

Achieve Flow and Pull

Improving Efficiency

# Continuous Product/Process Improvement

## Quality Improvement Models

<b>DMAIC (Six Sigma)</b>	<b>SDFLP (Lean)</b>
<b>Define</b>	<b>Specify Values</b>
<b>Measure</b>	<b>Demand</b>
<b>Analyze</b>	<b>Flow</b>
<b>Improve</b>	<b>Level</b>
<b>Control</b>	<b>Perfection</b>

# Continuous Product/Process Improvement

## Quality Improvement Tools

<b>Six Sigma</b>	<b>Lean Process</b>
<b>COPQ</b>	<b>5S</b>
<b>ANOVA</b>	<b>Mapping/Demand</b>
<b>DOE</b>	<b>Kaizen</b>
<b>...</b>	<b>...</b>

# QC/QA Process Cost/Benefit Analysis

## Cost of Bad Quality

Product/Process Failure

Product Detection

## Cost of Maintaining Quality

Prevention Cost

Auditing Cost

## Prioritize High Impact Projects

Project Management

Operation Management

## Business Analysis

## Marketing Research

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