

Section 1

# Quality Management

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## Which service would you use?



# Operations Management

- Project Management
- Product and service design and development
- Process design and technology
- Facilities and capacity planning
- Supply chain management
- Inventory management
- Performance measurements
- **Quality management**

“the customers perception of the transaction is that value has been gained”

What Influences that Perception?

- Quality Management
- Marketing
- Business Management
- Information Economics

# Quality Management

- Focus on the Customer - needs
- Leadership – unity of purpose
- All employees involved – leverage all talents
- Systemic approach – understand the process
- Continual improvement – ways to improve
- Data Based – empirically based decision
- Supplier Relationships – raw material quality
- Minimize Variation – in process

# History

- Quality Standards - Individual Craftspeople
- John Galsworthy – “Quality”
- Eli Whitney – Muskets
- Frederick W. Taylor – Scientific Management
- Henry Ford – Assembly Line
- Walter A. Shewhart – Statistical Methods
- W. Edwards Deming – Statistical Process Control

# Quality Improvement

- Lean Six Sigma
- Kaizen
- TQM – Total Quality Management
- TPS – Toyota Production System
- SPC – Statistical Process Control
- Kanban – Pull production

# Deming's "14 Points"

## Key Points

- ✓ Continuous improvement
- ✓ No evaluation by performance
- ✓ Leadership help people and machines do a better job
- ✓ Improve constantly and forever
- ✓ Vigorous program of education and self-improvement
- ✓ Do not rely on quality inspections, Improve Quality



# Lean Six Sigma

3.4 Defects per Million Incidents

# Six sigma

## Methods

**D**efine – What is the problem?

**M**easure – Gather Relevant Data

**A**nalyze – Determine Cause and Effect

**I**mprove – Optimize the Process

**C**ontrol – Control systems

# Six Sigma

Process example

# Kaizan

- Standardize operations and activities.
- Measure the standardized process
- Gauge measurements against requirements
- Innovate- meet requirements and increase productivity
- Standardize the improved operations
- Continue cycle *ad infinitum*

# Total Quality Management

Works best for Core Facilities

Involves All Stakeholders

Create a culture of quality

Aimed at Long Term Success

Driven by Customer Satisfaction

# Value Stream

Eliminate Waste and Add Value

- Examine the Process
- Map the Process
- Find Bottlenecks and Waste
- Draw a New Map
- Work toward a Better Process

# Create a Culture of Quality

The most important thing you can do!

- Everyone Thinks about Quality
- Value is Added at Every Step
- Celebrate Innovation
- Maintain a Customer Focus

# Lean Management

Core Facilities are Lean by Definition

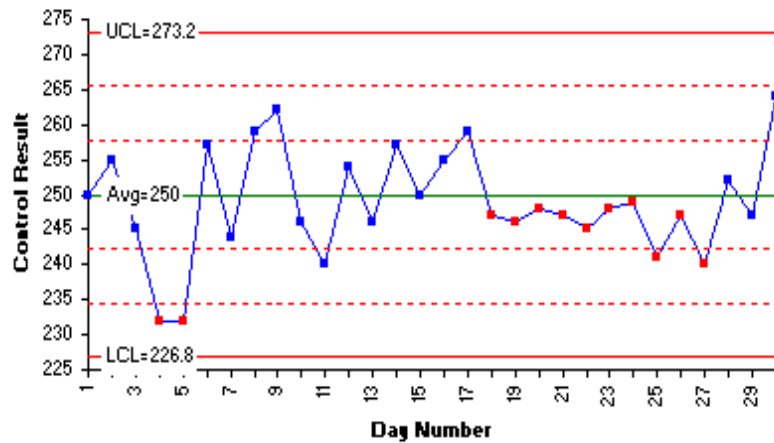
Highest Quality of Service  
Lowest possible Price



# Plots

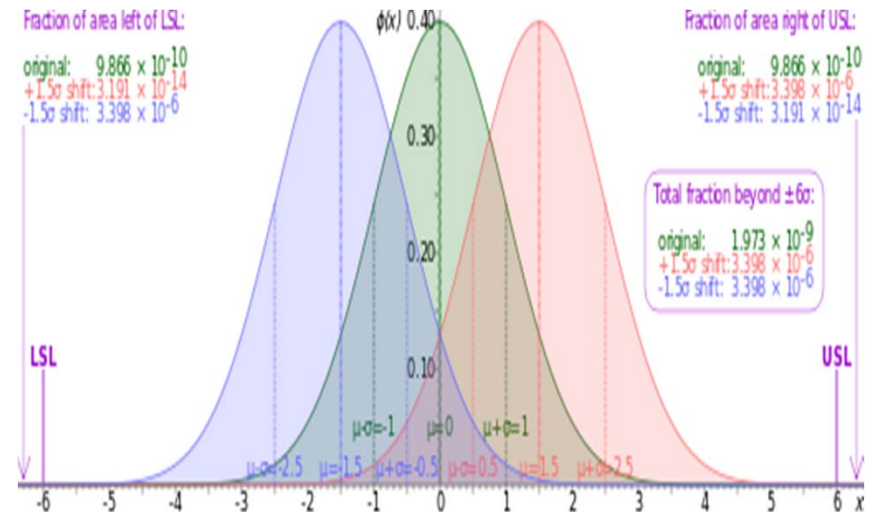
## LEVEY-JENNINGS

- Relative to the Mean



## NORMAL DISTRIBUTION

- $6\sigma$  Relative to the Mean



# Information Economics

Communicating Your Quality Efforts

- Show Levey-Jennings Plots
- Include Standards in your Reports
- Ask Customers to Participate

# QUALITY CONTROL

*"I worry that whoever thought up the term quality control believed that if we didn't control it, quality would get out of hand."*

*–Lily Tomlin*

- HAVE A GOAL
- Have a clear understanding of the gain
- Know the level of quality that delights