# ASQ CRE Prep course

## Lesson I. A. 4.

## Product and Process Development

This is where reliability starts

# PRODUCT AND PROCESS DEVELOPMENT

# Systems Engineering

**A logical sequence of activities and decisions transforming an operational need into a description of system performance parameters and preferred system configuration.**

- **Mission Requirements analysis**
- **Functional analysis**
- **Allocation**
- **Synthesis**
- **Logistic Engineering**

# Life Cycle Cost Analysis

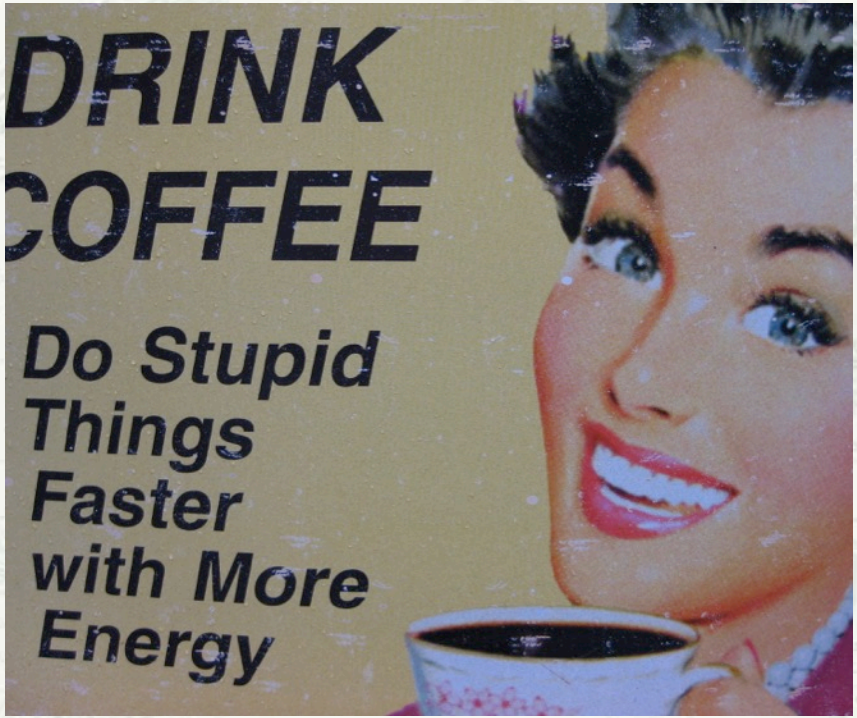
- **There is cost and there is cost**
  - **What we pay directly**
  - **What we pay indirectly**

# Use of FMEA

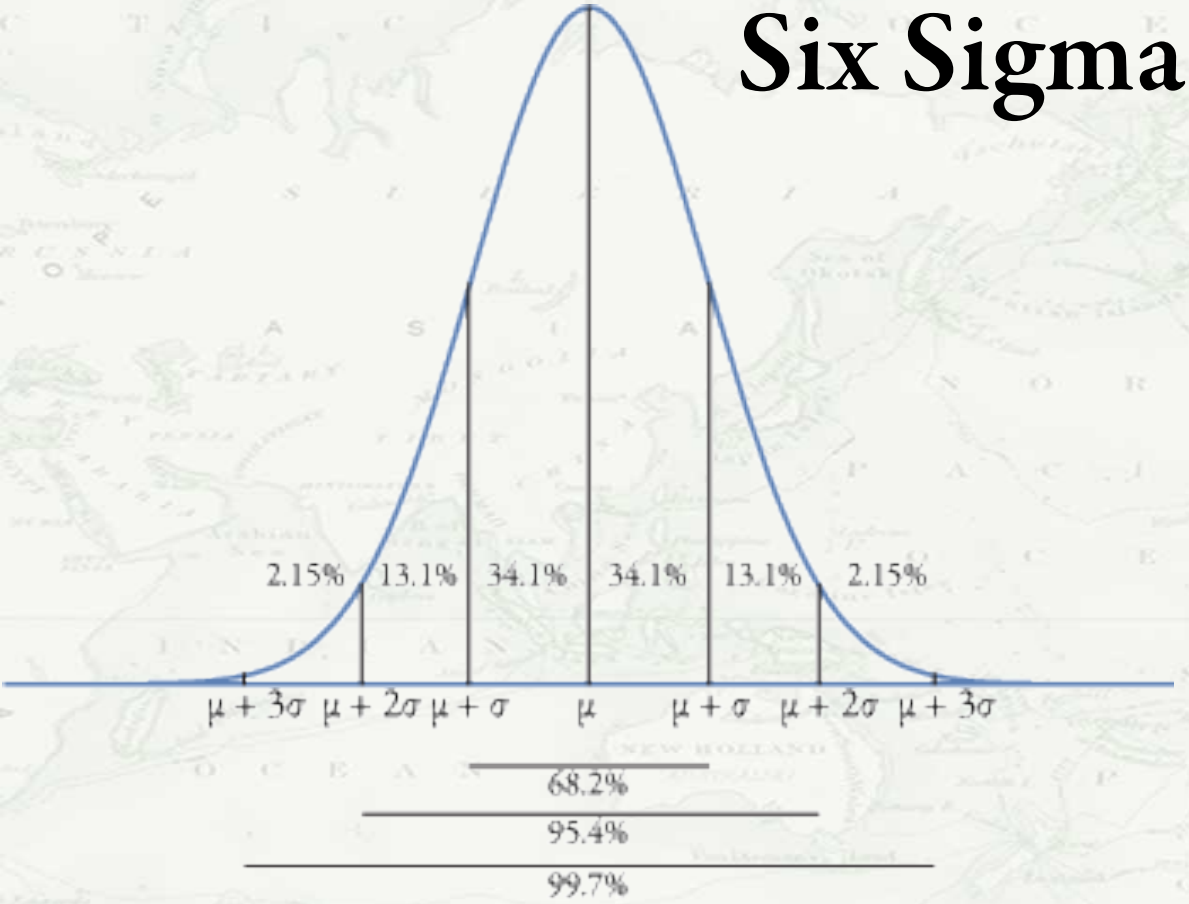
- **Risk assessment**
- **Part of decision making**
- **Part of design process**

# Concurrent Engineering

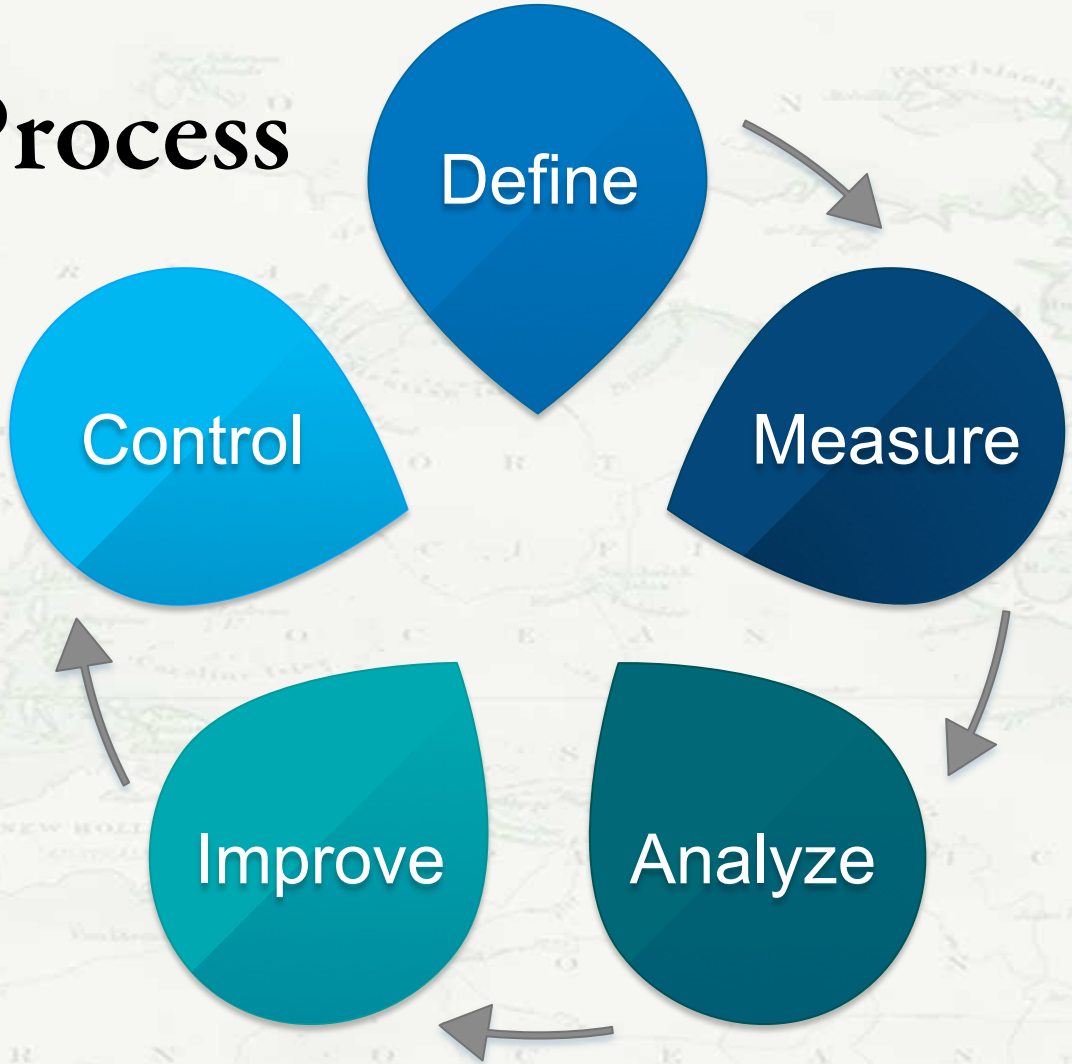
- **Design & Manufacturing**
- **Working in parallel**
- **Gnatt, Pert, and Flow charts**



# Six Sigma



# DMAIC Process



# Lean Techniques

- **Control and Improvement techniques**

- **Minimize non-value added activities**
- **Just in time**
- **SOPs**
- **Poka-yoka**
- **...and many more**

# 5S (Housekeeping)

- **Seiri (sort or organize)**
- **Seiton (set, straighten, or store)**
- **Seiso (shine)**
- **Seiketsu (standardize)**
- **Shitsuke (sustain or self-discipline)**

# Kaizen & Kaizen Blitz

- **Continuous improvement & focused effort to improve (blitz)**

- **Operating standards**
- **Progress improvement**
- **PDCA improvement cycles**
- **Problems solve with hard data**
- **Provide next process good data and parts**
- **Quality is highest priority**

# Other Lean Approaches

- Cycle Time Reduction
- Value Stream Mapping
- Non-value Added Activities
- Continuous flow Manufacturing
- Total Productive Maintenance
- Visual Factory
- Kanban
- Standard Work
- Mistake Proofing

# Is reliability part of your lifecycle?

# ASQ CRE Prep course

## Lesson I. A. 5.

## Failure Consequence and Liability Management