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An Introduction to Lean Six Sigma

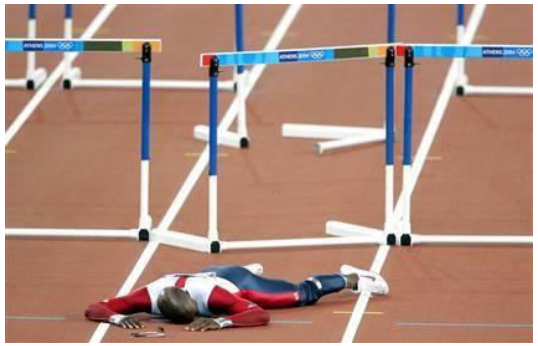
Business Beam

Too Many Buzzwords, Which One to Chose?

- Lean
- Six Sigma
- 5S
- Kaizen
- Poka-Yoke

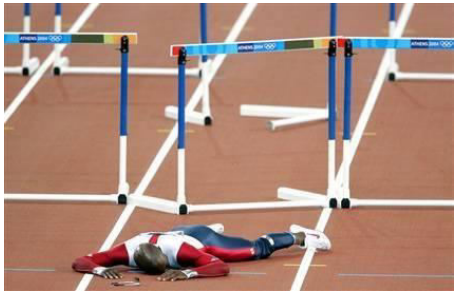
- and many more…

Which track will help you run Marathon in min. possible time?



Logical Improvement Steps

- Lets remove hurdles first…






This is Lean!!!

What is Lean?

- Lean manufacturing or lean production, often simply "Lean", is a production practice that targets for elimination of waste.

- What is Waste?
  - Anything other than the minimum amount of equipment, materials, parts, space, and worker's time which are absolutely necessary to add value to the product.
  - For example:
    - Defects
    - Overproduction
    - Waiting
    - Non-utilized resources
    - Transportation
    - Inventory
    - Extra processing

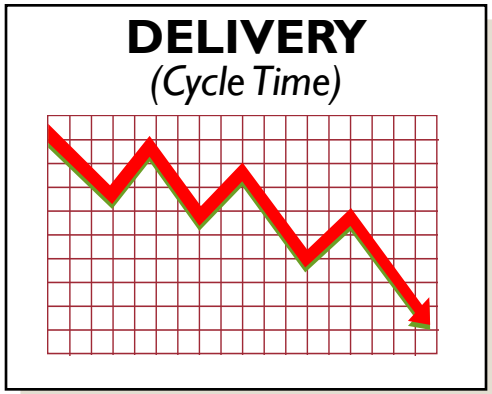
Results of Lean

Low Cost

- Lower working capital
- Less scrap and rework
- Higher productivity

High Quality

- Receive feedback at more frequent intervals
- Introduce design/ quality improvements at a more rapid rate



Fast Response to Market

- Shorter delivery time
- Faster to market with new products
- Improved market share

Related Terms

- There are several related terms
  - Kaizen
  - 6S
  - Poka Yoke
  - Just In Time
  - TQM

Kaizen

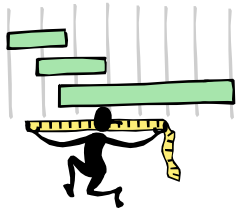
- Kaizen is the organized use of common sense to improve cost, quality, delivery, and responsiveness to customer needs.
  - Five components of Kaizen are:
    - Teamwork
    - Personal discipline
    - Improved morale
    - Quality circles
    - Suggestions for improvement

6S (5S plus Safety)

Sort

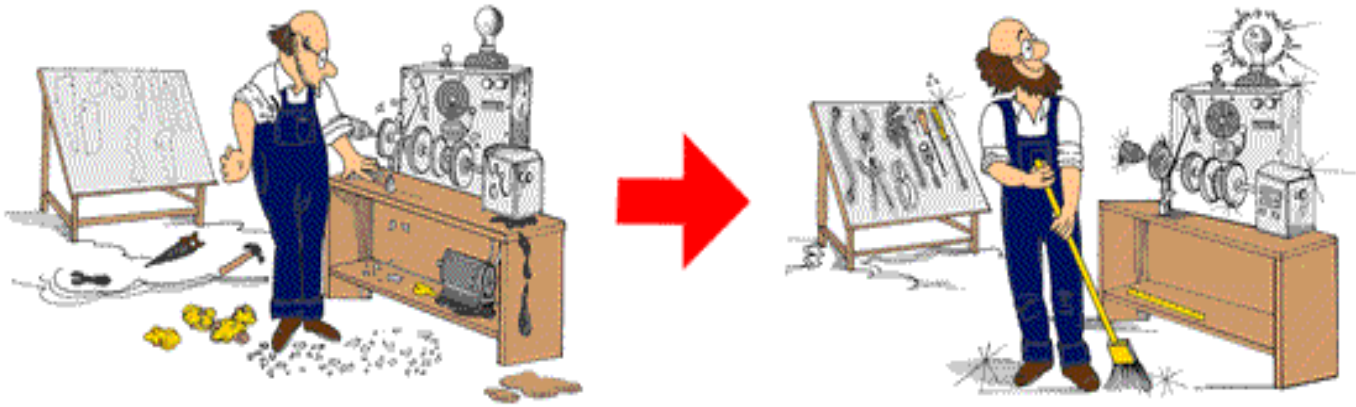
Set in Order

Shine



Standardize

Sustain



Poka Yoke

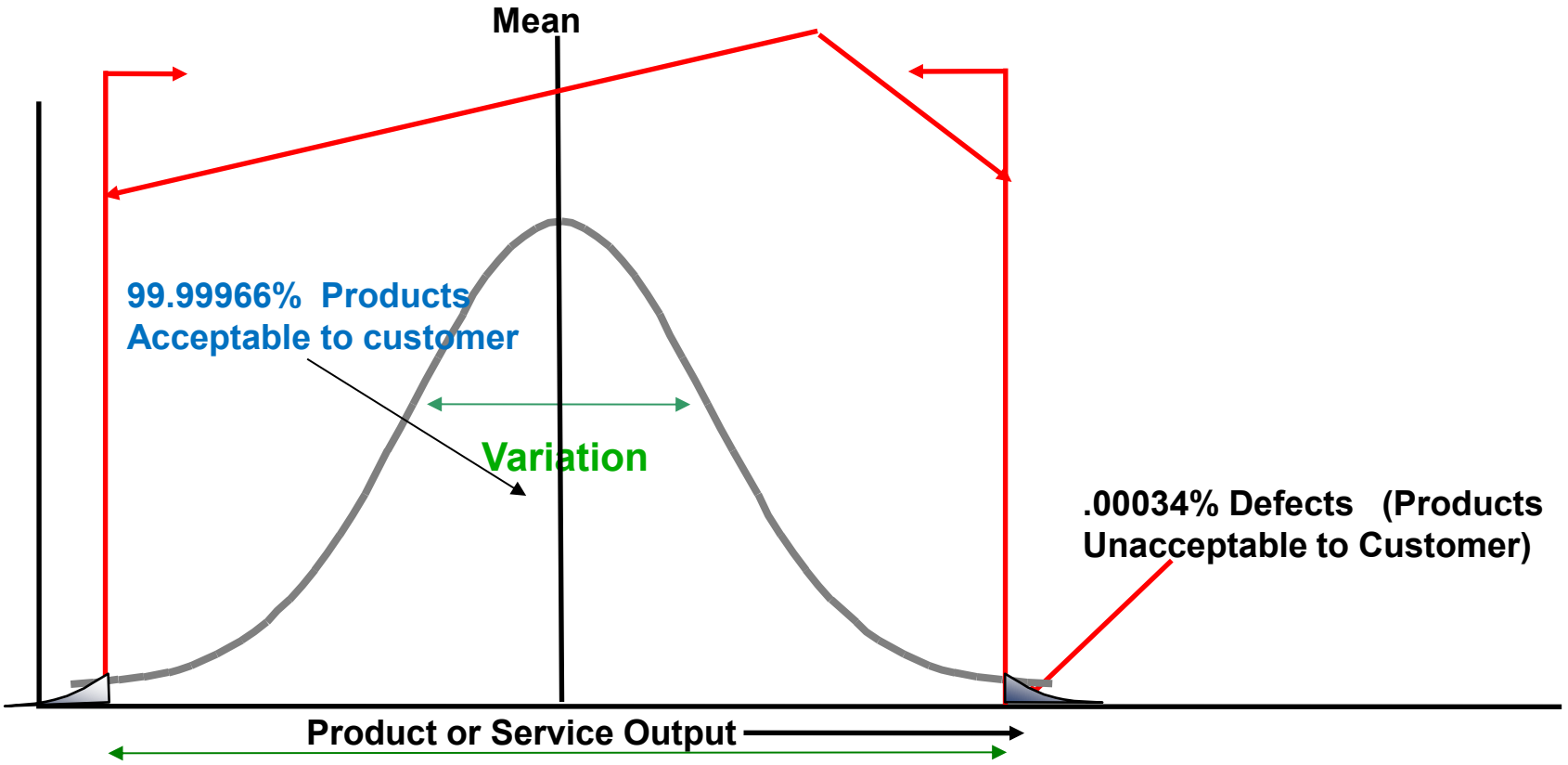
- A poka-yoke device is any mechanism that either prevents a mistake from being made or makes the mistake obvious at a glance.

- The goal of poka-yoke is both prevention and detection: "errors will not turn into defects if feedback and action take place at the error stage."

Six Sigma

- A Measure of Variability
- How much Data falls within Customers' Requirements
  - 3.4 Defect per Million Opportunities or
  - 99.99996% of Data or Opportunities
- Higher the Process Sigma
  - The more Outputs meet Customers' Requirements or
  - The fewer the Defects.

Performing at Six Sigma



Six Sigma Implementation

DMAIC

1. Define

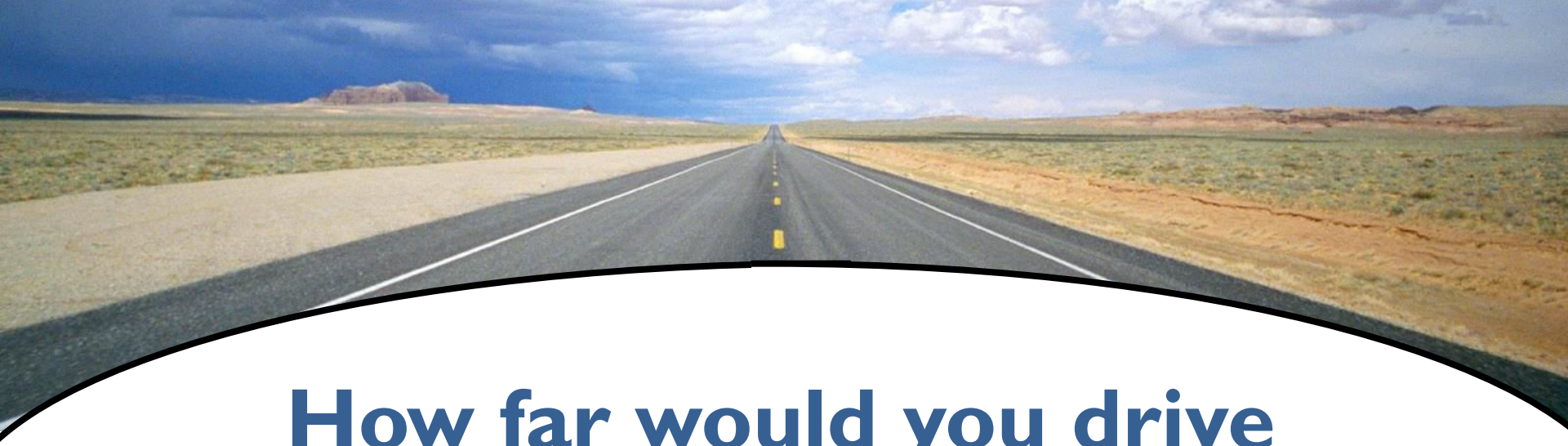
- Activities performed
  - Map Current State
  - Customers
  - Demand Rate
  - Processes
  - Suppliers
  - Storage Locations
  - Product Flow
  - Information Flow

DEFINE

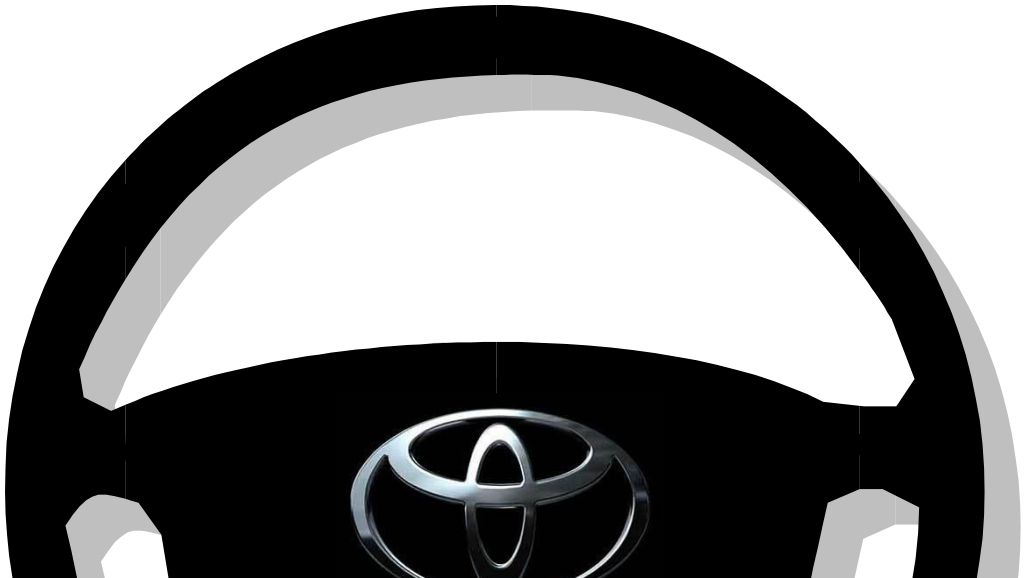
2. Measure

- Activities performed
  - Measure Inventory
  - Total Lead Time
  - Total Cycle Time
  - Process Time
  - Cycle Efficiency

MEASURE



How far would you drive without your gauges?




Up Time
On-Time Performance
Average Lead Time
Days
Labor Cost per Work Order
Inventory Turns
Turnover
Average Survey Score
Total Recordable Case Rate
FY09

3. Analyze

- Activities performed:
  - Identify Waste
  - Over Producing
  - Inventory
  - Waiting
  - Motion
  - Transportation
  - Defects
  - Processing
  - Build Strategy
  - Build To Order
  - Assemble To Order
  - Finish To Order
  - Engineer To Order
  - Identify the Pacemaker
  - Identify Issues

ANALYZE

4. Improve

- Activities performed
  - Kaizen
  - Map Future State
  - Demand
  - Create Flow from Pacemaker
  - Create Pull from Pacemaker
  - Calculate Inventory amounts
  - Safety Stock
  - Buffer Sizes

IMPROVE

5. Control

- Activities performed
  - Create metrics to maintain Future State
  - Continuously Improve

CONTROL

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Thank You!

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