

## **Six Sigma**

**The Redegg Info Expert team had come out with the new idea of training the employees on various hot and exciting topics, which they face in their day today life. Just as a diamond polishes a diamond the employees themselves came forward to polish their colleagues out.**

**As a first step of the process Mrs. Uma Mathavan, Senior Research Analyst made her presentation on the topic Six Sigma on 6<sup>th</sup> February 2009 @ 6pm IST.**

# Six Sigma

# Origin of Six Sigma

- 1987 Motorola Develops Six Sigma
  - Raised Quality Standards
- Other Companies Adopt Six Sigma
  - GE
    - Promotions, Profit Sharing (Stock Options), etc. directly tied to Six Sigma training.
  - Dow Chemical, DuPont, Honeywell, Whirlpool

## *Six Sigma— Benefits?*

- Generated sustained success
- Project selection tied to organizational strategy
  - Customer focused
  - Profits
- Recognition and reward system established to provide motivation

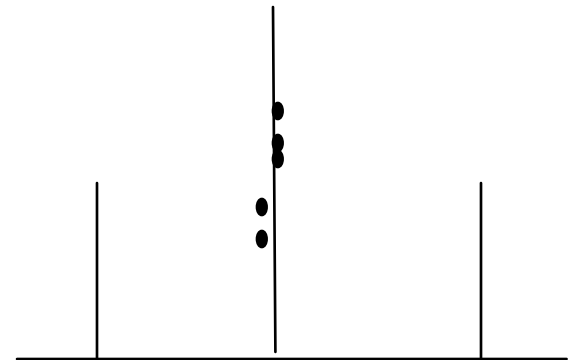
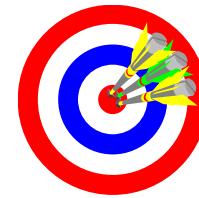
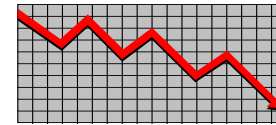
# *Six Sigma - Organizational Benefits*

Indirectly as the direct result of Six Sigma implementation in the Organization:

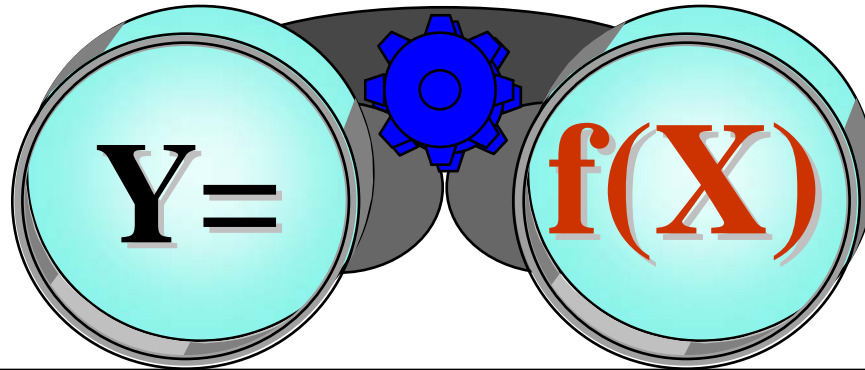
- Increase Market Share
- Lasting Success
- Customer Loyalty
- High Standards in Every Operations
- 6 Sigma projects are designed to improve CTQ

# Need of Six Sigma

- Know What's Important to the Customer (CTQ)
- Reduce Defects (DPMO)
- Center Around Target (Mean)
- Reduce Variation (Standard Deviation)



# Data Driven Decision



- Y
- Dependent
- Output
- Effect
- Symptom
- Monitor

- $X_1 \dots X_n$
- Independent
- Input-Process
- Cause
- Problem
- Control

**The focus of Six sigma is to identify and control Xs**

# Defective and Defect

- A nonconforming unit is a defective unit
- Defect is nonconformance on one of many possible quality characteristics of a unit that causes customer dissatisfaction.
- A defect does not necessarily make the unit defective

**Six Sigma performance is 3.4 DPMO**

# Components

## Two components of Six Sigma

1. Process Power

2. People Power

# Two Processes

## **DMAIC**

Existing Processes

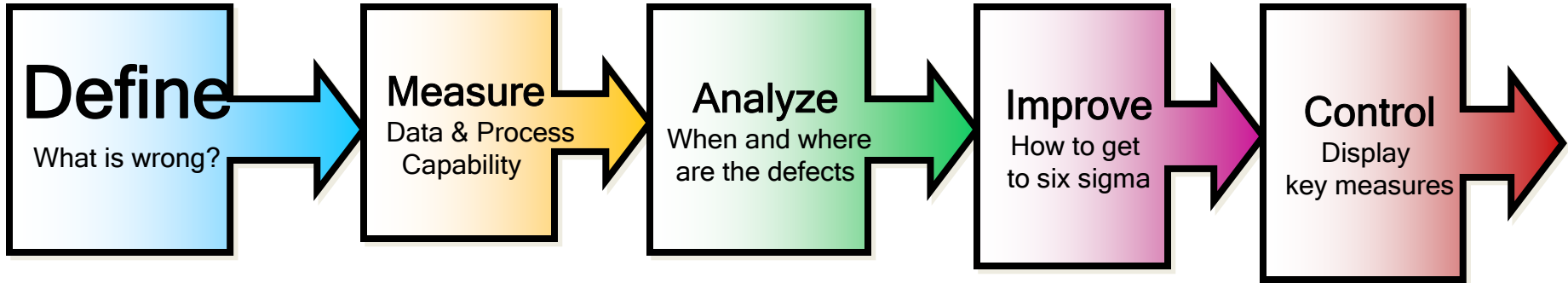
- Define
- Measure
- Analyze
- Improve
- Control

## **DMAIV**

New Processes

- Define
- Measure
- Analyze
- Improve
- Verify

# Tools for DMAIC



- Benchmark
- Baseline
- Contract / Charter
- Kano Model
- Voice of the Customer
- Quality Function Deployment
- Process Flow Map
- Project Management
- “Management by Fact” - 4 What’s

- 7 Basic Tools
- Defect Metrics
- Data Collection, Forms, Plan, Logistics
- Sampling Techniques

- Cause & Effect Diagrams
- Failure Models & Effect Analysis
- Decision & Risk Analysis
- Statistical Inference
- Control Charts
- Capability
- Reliability Analysis
- Root Cause Analysis
- 5 Why’s
- Systems Thinking

- Design of Experiments
- Modelling
- Tolerancing
- Robust Design
- Process Map

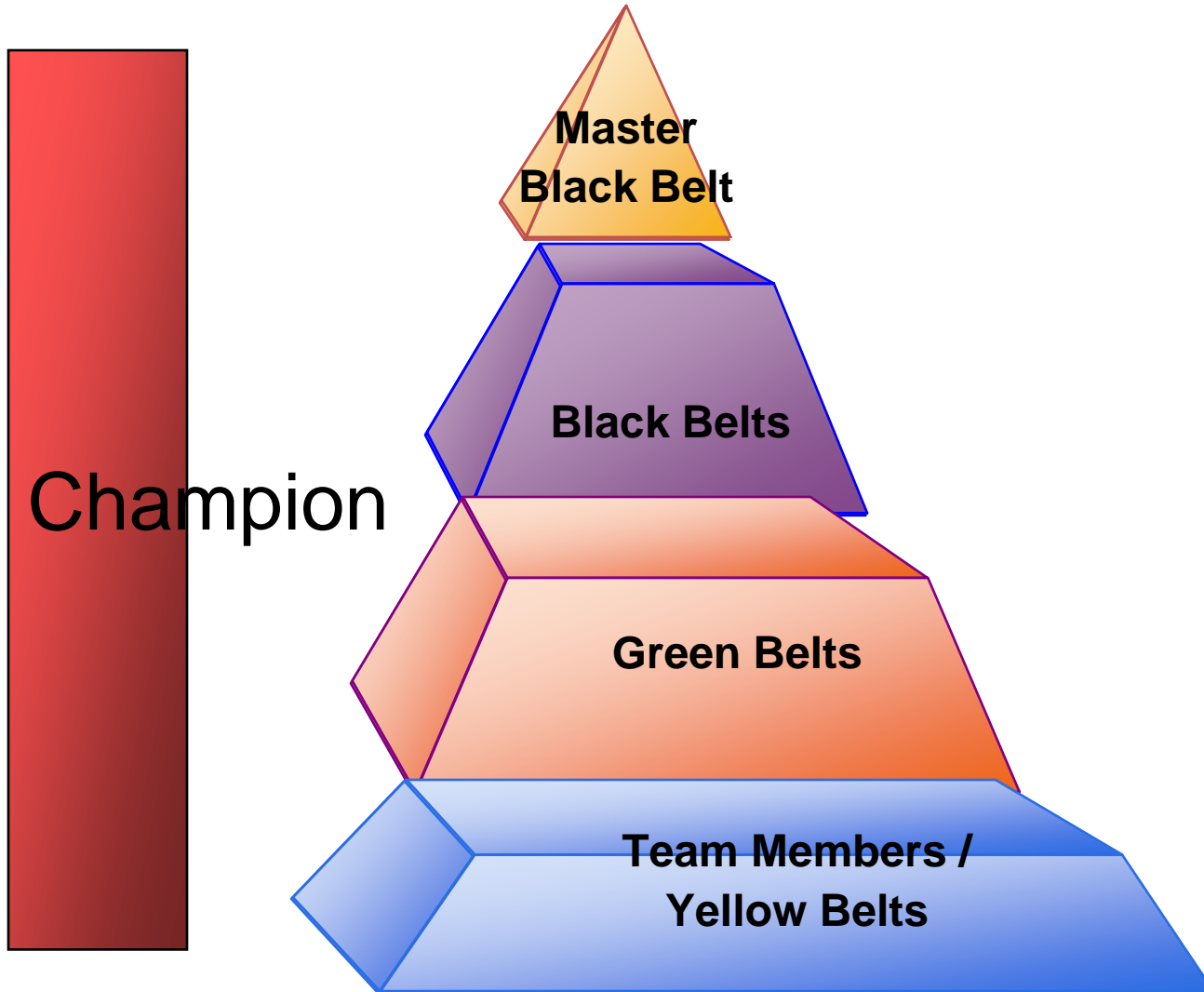
## Statistical Controls

- Control Charts
- Time Series Methods

## Non Statistical Controls

- Procedure adherence
- Performance Mgmt
- Preventive activities
- Poke yoke

# 6 $\sigma$ Training



# Thought of the Day

Quality and Quantity are the two sides of a same coin. One can Complement each other but should not compromise each other.

**Thank You**