

# Lean Six Sigma

## A Brief Introduction

By

Wavepac Infosystems LLC

Dubai - UAE

(In coordination with AIQM - India)

# GE's ex CEO Jack Welch's words....

- Six sigma has changed the DNA at GE
  - ✓ it is the way that GE works
  - ✓ in everything that GE does
  - ✓ in every product GE designs
- GE's operating income hovered around 9% for decades.
- In 1995, Welch mandated each GE business unit to work towards achieving six sigma.
- GE was averaging about 3.5 Sigma when it introduced the program.
- With Six sigma, GE achieved the previously "impossible" operating margin of 16.7% in 1998.



## So, What is Six sigma?

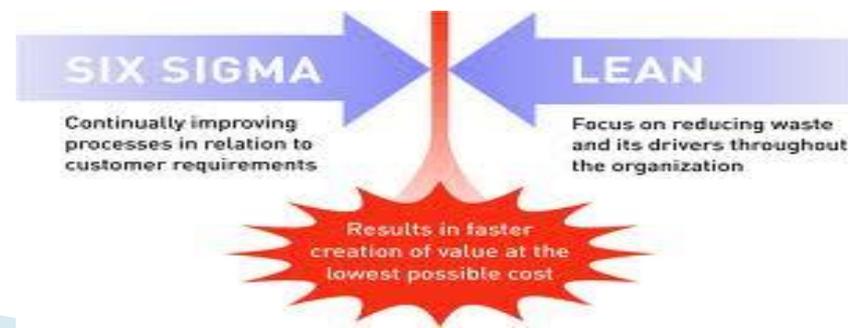


A process improvement methodology developed by Motorola (in 1986) to **reduce defects** in the organization's activities, thereby increasing satisfaction of its customers.

## & What is Lean six sigma?



A modified form of Six sigma where the organization not only reduces defects but also **eliminates various types of wastes** in its processes.

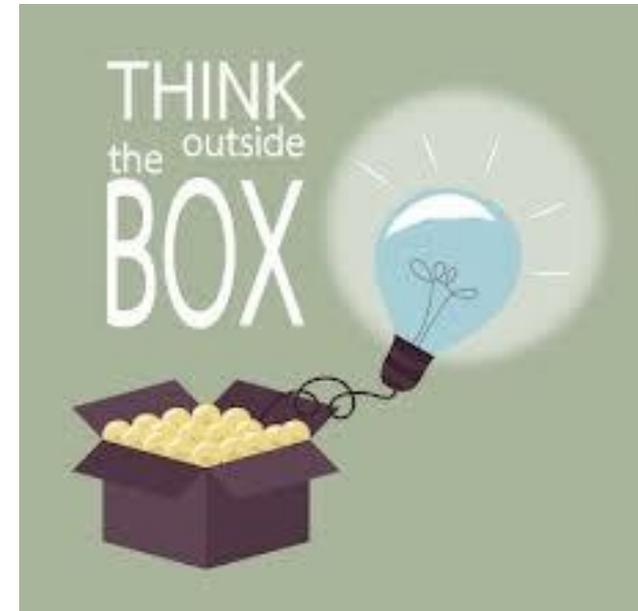


# Why lean six sigma?

In current scenario of global Competition, customers (and regulatory agencies) have very high expectations from businesses.

## Lean six sigma helps us to:

- Reduce defects
- Eliminate waste
- Achieve on-time deliveries
- Increase Customer satisfaction
- Reduce costs & improve profits.
- Stay ahead of Competition



# Worldwide spread of six sigma

1986 - Motorola

1989 - IBM

1991 - Kodak, DEC

1993 - ABB

1995 - GE Financial Services, Allied Signal

1997 - Dow Chemical, Dupont, NEC, Samsung, LG Elec., Sony, Toshiba, Whirlpool

1999 - American Express, J&J, Ericsson, NCR, Nokia, Philips, US Postal Service

More than 53% of fortune-500 companies and above 82% of fortune-100 companies are there today because they rely on six sigma.



# Sigma Levels & DPMO

Defects per Million Opportunities for Error	% Defects	Sigma Level
690,000	69 %	1.0
308,000	30.8 %	2.0
66,800	6.68 %	3.0
6,210	0.62 %	4.0
230	0.023 %	5.0
3.4	0.00034 %	6.0

# Financial impact of Six Sigma



\$ 1.5 Billion in 1999



\$ 600M/year Avg. since 1995



\$ 3 Billion in savings since 1995



\$ 1.5 Billion in 1999



\$ 85M early 2000



\$ 2.5 Billion in 1999

# Six sigma benefits

- Defects at customer level are reduced substantially – **increases satisfaction** of both external & internal customers.
- Focus changes from “product excellence’ to “**process excellence**”.
- People stop hiding mistakes and work towards **preventing mistakes** in future.
- Process-mapping and value analysis helps to **reduce wastages** in the organization.
- Substantial **improvement in profitability** for the organization.



# Traditional view of “Quality” vs “Six sigma” view

Traditional view	Six sigma view
Quality means: “fulfill specifications”	Quality means: “achieve customer satisfaction”
Quality cannot be measured	Quality is precisely measurable
Error in work is bound to happen	Error in work can be prevented, if planned
100% inspection will ensure that best quality is achieved.	Inspection is not very reliable method of achieving quality – we need to depend on methods of prevention.

# Guideline

Every black belt project must

Result in

profits / cost savings of

minimum \$ 250 k to 500 k per year.



# Six Sigma Implementation

- Trained Black belts and Green belts will form project teams led by champion (process-owner).
- They will work on problems that cause pain to the organization and customers.
- These teams will use **DMAIC methodology** to find **permanent solutions** for such problems.

Six Sigma Roles and Responsibilities



## Quote from W. Edwards Deming

- When you **measure**, you can **understand**
- When you understand, you can **control**
- When you control, you can **improve**
- When you improve, you can **achieve** your **goal**.



# DMAIC is a structured approach to solve Problems & improve processes

The steps are:

- ▶ Define
- ▶ Measure
- ▶ Analyze
- ▶ Improve
- ▶ Control



# Summarizing the power of lean six sigma

- Provides a world class business strategy.
- Encourages a common vision and common language shared by all.
- Promotes teamwork and rewards measurable.
- Combines breakthrough goals with a method and a set of tools.
- Creates better knowledge leading to:
  - Improved cycle times
  - Reduced defects
  - Lower costs.

***Better*** products and services  
delivered ***faster and at lower cost***  
=  
**Improved Customer Value**

# Types of businesses who use Lean six sigma today

- Airlines
  - Army, navy & police
  - Automobile
  - Banking, insurance & other fin services
  - Call centers, BPO, KPO
  - Construction
  - Electronics
  - Engineering
  - IT / software
  - Food and beverage
  - Healthcare / medical devices
  - Logistics
  - Petroleum / Petrochemicals
  - Police
  - Plastics and chemicals
  - Telecommunications
  - Transport
  - And many others
- 

Thank You