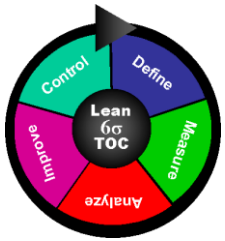

Welcome to Webinar on

Quality Management Techniques (QMT) in Business & Operation Excellence

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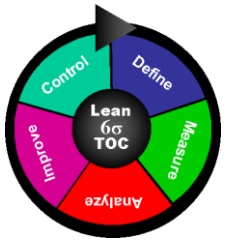

Objectives

- Why Quality Management Techniques (QMT)?
- How Quality Management Techniques (QMT) help?
- Overview of Various QMTs (Process improving Methodologies)

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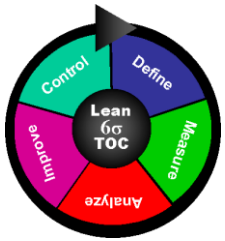

Introduction

➢ The COVID19, pandemic has revealed many weaknesses in the global system. Despite our accumulated experience in crisis management, this virus has been able to isolate us

➢ The COVID19, pandemic has brought a **paradigm shift** in the way we perceive, understand, operate and interpret the world around us

➢ As all of us are aware that Post Covid19 Global opportunities for Indian MSMEs are brighter and higher, however, the important question is, are the MSMEs ready for Global Supplies as per their Standard / Accreditation in terms of Quality, Productivity, Energy, Environment, People development, CSR etc. If the MSMEs opt for ZED Maturity Model they will be the preferred destination for Global Supplies

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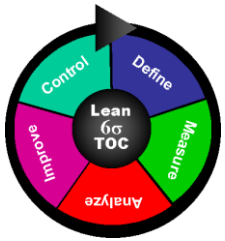

The Challenges

Accreditation & Certification	**Global Market is Open**	**Visualize Needs of Customer**	**No Questions asked Policy**	**Techno savvy MSME will Lead**
IMS/ZED/ ISO 50001 and many more as per Customers requirement	Invisible Customer is ready for you E- commerce/ On line marketing	In this Fickle and fast Changing world regularly monitor the buying pattern of Customer	Be prepared to pay full refund to dissatisfied Customer	Automation / Industry 4.0/ IoT/ CRM/ DDMRP/ SCM-CPFR/ Tools/Collaborative Tool/ Auto responders

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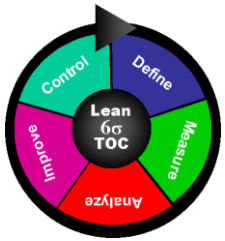

Business

We are in the business to make money

We make money by satisfying needs

We are able to satisfy needs by doing

Every need / do pair is an interaction

The aim of customer focus is on improving need / do interactions

Repetition of the same action constitutes a process

Improvement of our business mean improvement of our process

customers need product / service on-time, with zero defects, at the lowest cost

Suppliers create processes to generate needed products

As process capability improves, the product quality increases

As quality increases, costs & cycle-time go down

The attributes of customer satisfaction must be measured if they are to be improved

To improve means we must be able to predict and prevent, not detect and react

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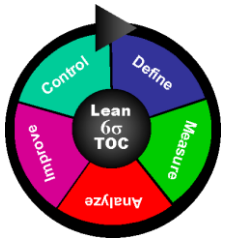

Excellence

Excellence is not a linear function of Money. It is an integration of 4 Ps (passion, planning, process and people). It is not about squeezing the last dollar / Rupee out of your process but about finding new and innovative ways to deliver value at lower cost.

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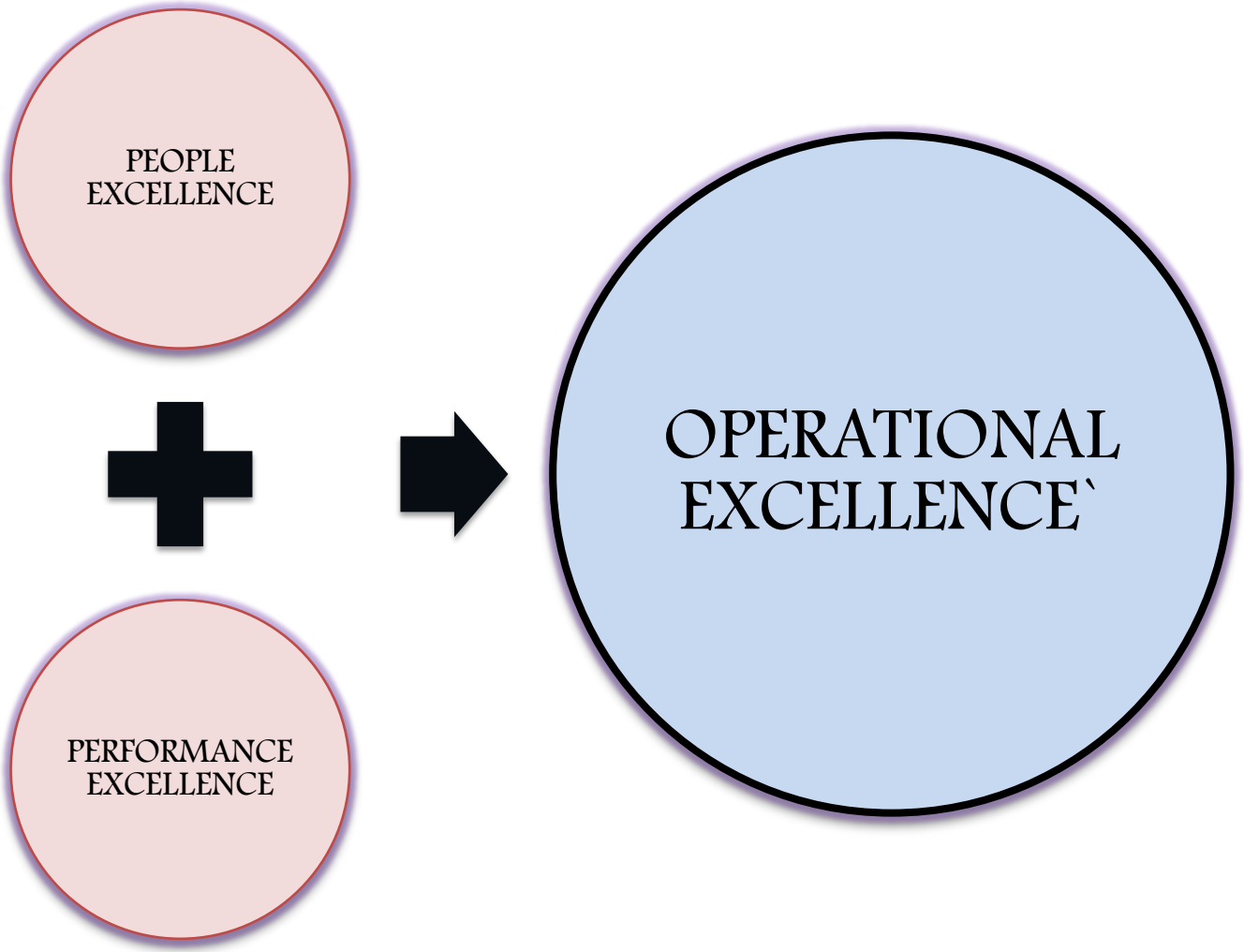
How to Achieve Operational Excellence?



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People Excellence

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Performance Excellence

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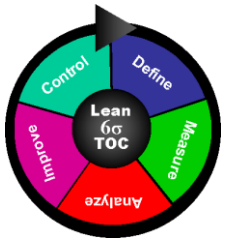

Why QMTs?

- We are operating in a **VUCA** economy
- Customer expectations are higher than ever
- In today's highly competitive and complex world, the issue of sustainability, viewed from an economic, environmental and societal perspective means that businesses must be more efficient across a wide range of measures and issues

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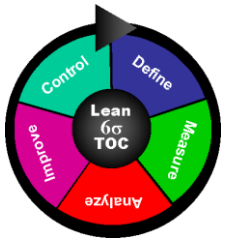

How QMT help?

- While Implementing QMT, the investment you have to make are in training, and action related to process/ quality, such as measurement system, documentation, reporting, inspection, tools, calibration etc. Once you establish complete implementation of standard and quality infra structure (i.e. the cost of Quality **COQ/ Cost of conformance**), then you reap the rewards by reducing cost of poor quality **COPQ** drastically leading to Customer satisfaction and thereby Repeat Business
- QMT helps organizations to achieve more with less, thus maximizing profits and meet their goals, and is crucial for success in today's challenging and competitive economic environment

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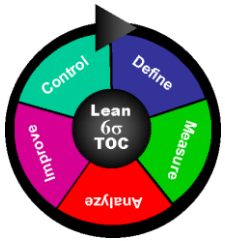

The Various QMTs

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Process Approach

A desired result is achieved more efficiently when related resources and activities are managed as process.

Input

Includes Resources

Using
- **Resources**
- **Management Activities**

Output

Product or Service

"Result of a Process"

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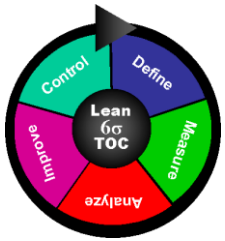

We know we must change in Xs to create a change in Y….

process output | is | a function of | key process and input factors that cause variation in the output

$$y = f(x_1, x_2, \ldots)$$

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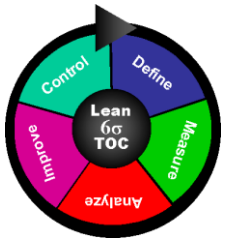

ZED™

ZERO DEFECT • ZERO EFFECT

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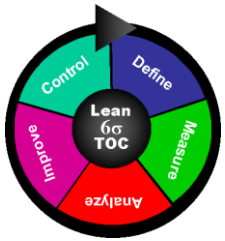

Preliminary Introduction

The Ministry of MSME, Government of India is endeavoring to develop the global competitiveness of MSMEs and has envisioned an ecosystem for competitive, clean and green manufacturing, development of world class quality products, reduction in emission level of greenhouse gases, reduction in defects/ wastage and support for expanding markets for MSMEs.

Under Make in India Mission Govt. of India is inviting the world's best industries to produce world class product for the Global Market in India and these industries will need supporting local Indian MSME's who can supply them world class quality products, the ZED certified MSME's will be their preferred destination.

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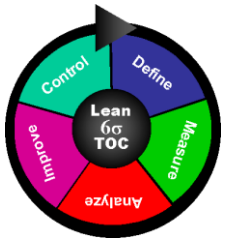

Quality in Indian MSME Scenario: The Arjun Dilemma

- Given a specific target he can only see the eye of rotating fish
- And the same guy sits in midst of Kurushretra in Mahabharata wondering what to do! Needs "Consultant" to figure out the point

What MSME (Arjun) needs today

- Knowing 5W & H to apply ZED i.e. Applying the ZED Maturity Model
- A consultant to educate, train, coach and mentor to give meaning to the project

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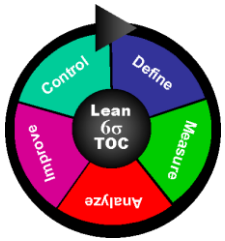

Ultimately what is needed

- MSME needs the eye of rotating fish = Dashboard – a simple set of Business METRIC
- MSME needs Gita = ZED Maturity Model(ZMM)
- MSME needs Krishna = Consultant & Top Management Involvement
- MSME needs time to sort it out, this is = A consultant who will educate, train, coach & mentor them and take their performance to World class level

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Training is Today's Business imperative; Training = Make and Recruiting = Buy and there is no option to make.

What is ZED?

- India's indigenous Maturity Assessment Model. An important gear in the wheel of MAKE IN INDIA and ATMA NIRBHAR BHARAT initiative.

- ZED is an effective and efficient operating system equipped with capable processes and people to produce and deliver world-class quality products and services without making any adverse effect on the Environment

- ZED scheme is linked with "ATMANIRBHAR BHARAT", as it is the base line requirement for improvement of MSME's as ZED Maturity Model is very comprehensive

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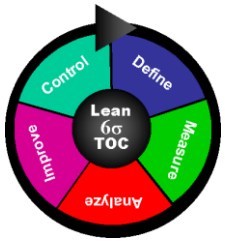

Goal of any Business Organization is to make

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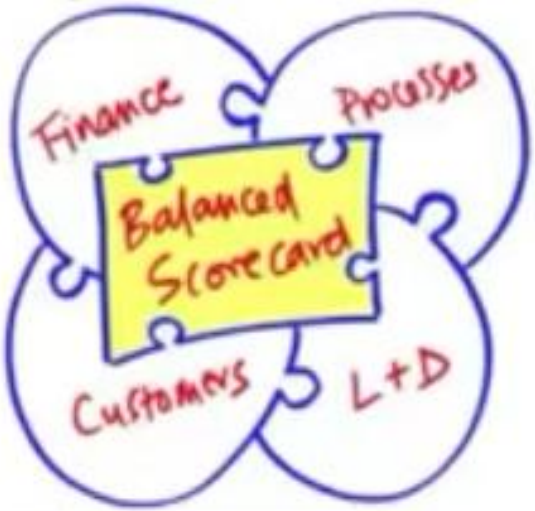
Sustainable growth is required in four areas



Growth Area	Metrics
Financial	Profit & Turnover Growth
Customer Value	Better Quality, Faster Delivery & Competitive Price
Process Capability	Zero Defect & Zero Effect
Employee Involvement	Learning, Development & Participation

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How to attain sustainable growth?

ZED is the Solution

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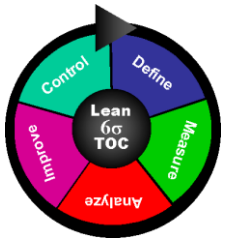

ZED ASSESSMENT DISCIPLINES

ZED

- Production
- Quality
- HR
- Environment
- IPR
- Design
- Safety
- Energy
- Natural Resources
- Finance

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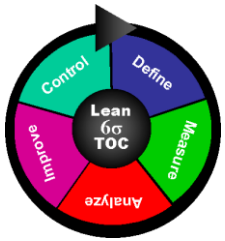

ZED Rating & Certification

- Assessment of a Unit on **minimum 30** out of 50 parameters, including **20 mandatory** parameters

- **Additional 25 parameters** for MSMEs supplying to Defense Sector

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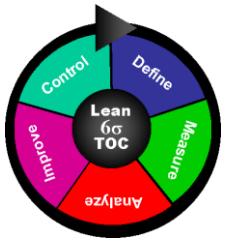

ZED Rating & Certification

- The 50 Parameters are mentioned in the ZED Maturity Model are available on ZED website (www.ZED.org.in). The assessment of MSME shall be done on **minimum 30** out of 50 parameters, including **20 mandatory** parameters
- The first 36 parameters are **enablers** and from 37 to 50 (14 Nos.) are **out comes**
- Out of the 36 enablers **13 are mandatory** and out of 14 Outcomes **7 are mandatory**, which totals to **20 mandatory** parameters (**13 + 7**)
- Additional **25 parameters** for MSMEs supplying to Defense Sector are all mandatory

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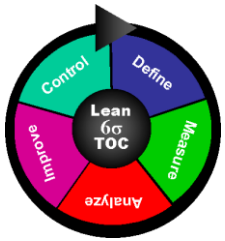
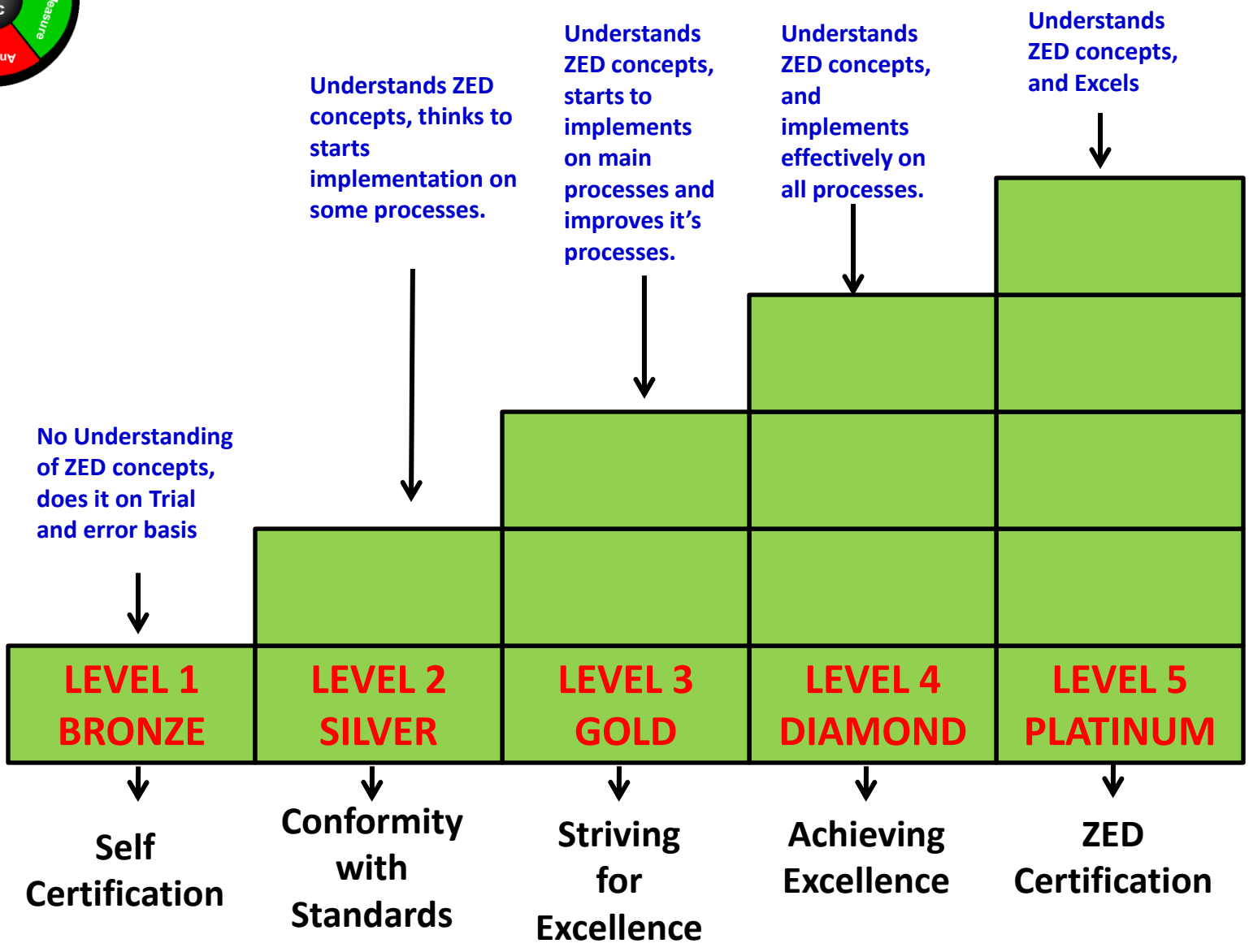
ZED Certification can be obtained in 5 Levels





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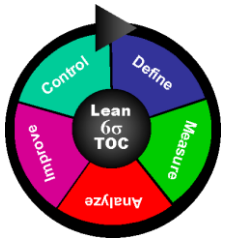

How does ZED rating system work?

An example

Company X is being rated on 30 parameters

Of these 30 para-meters	On 4 parameters the MSME is at Level 4
	On another 8 parameters it is at Level 3
	On remaining 18 parameters it is at Level 2

Hence, the scores will be calcu-lated as

Parameters	Level	Marks
4	4	16
8	3	24
18	2	36
	Total	76

Company X Rating	(Total points/applicable parameters): 76 / 30 = 2.53
	COMPANY X is rated as: **ZED SILVER**

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7 Step Process flow for ZED rating

7 Steps towards 'Excellence'

1	**Registration**	Online Registration by MSMEs
2	**Online Self-assessment**	MSMEs to self-assess **based on ZED parameters**
3	**Desktop assessment**	Assessment based on documents **submitted by MSMEs**
4	**Site assessment**	On-site assessment of **only MSMEs, selected in Desktop Assessment**
5	**ZED rating & certification**	**Final ZED rating** and **certificate** (valid for 4 years)
6	**Gap analysis & handholding**	Option to avail services of **gap analysis & handholding**
7	**Re-assessment**	Option to apply for re-assessment

Surveillance: On-site surveillance 2 times in a cycle

How ZED will Help?

Hidden Cost of Quality

There are additional costs of quality which are hidden and do not appear in the account books of the company, as they are intangible and difficult to measure. These additional costs could be as high as 20-40% of sales and comprise of low conversion efficiency of materials, cost of resolving customer problems, inadequate resource utilization, high inventory, long cycle times, more set-up times, penalties due to late delivery and lost customer loyalty and goodwill.

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Traditional Quality Cost

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Visible and Hidden Cost

- Prevention cost
- Appraisal cost
- Int. & Ext. Failure cost

} **Cost of Conformance**

Cost of non conformance

Visible costs

- Inadequate resource utilization
- Cost of redesign and re-inspection
- Cost of resolving customer problems
- Lost customers / Goodwill

Hidden Costs

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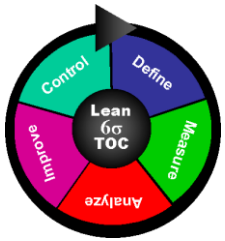
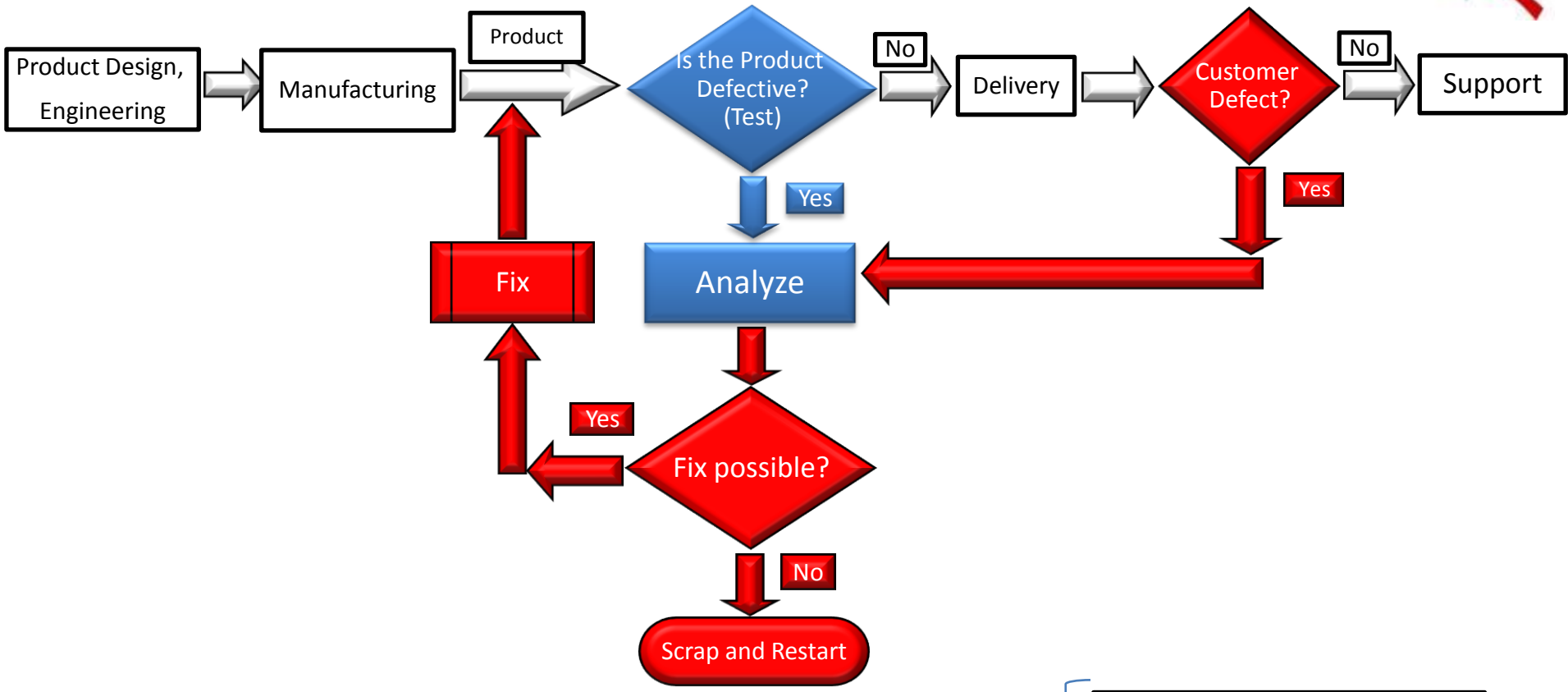
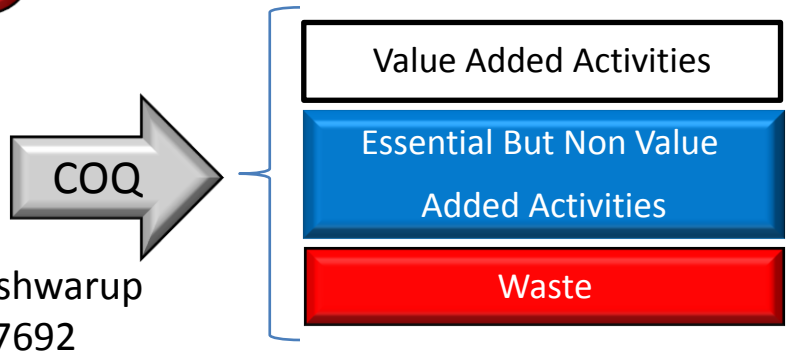
Hidden Factory







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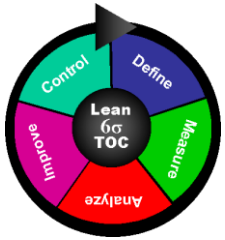
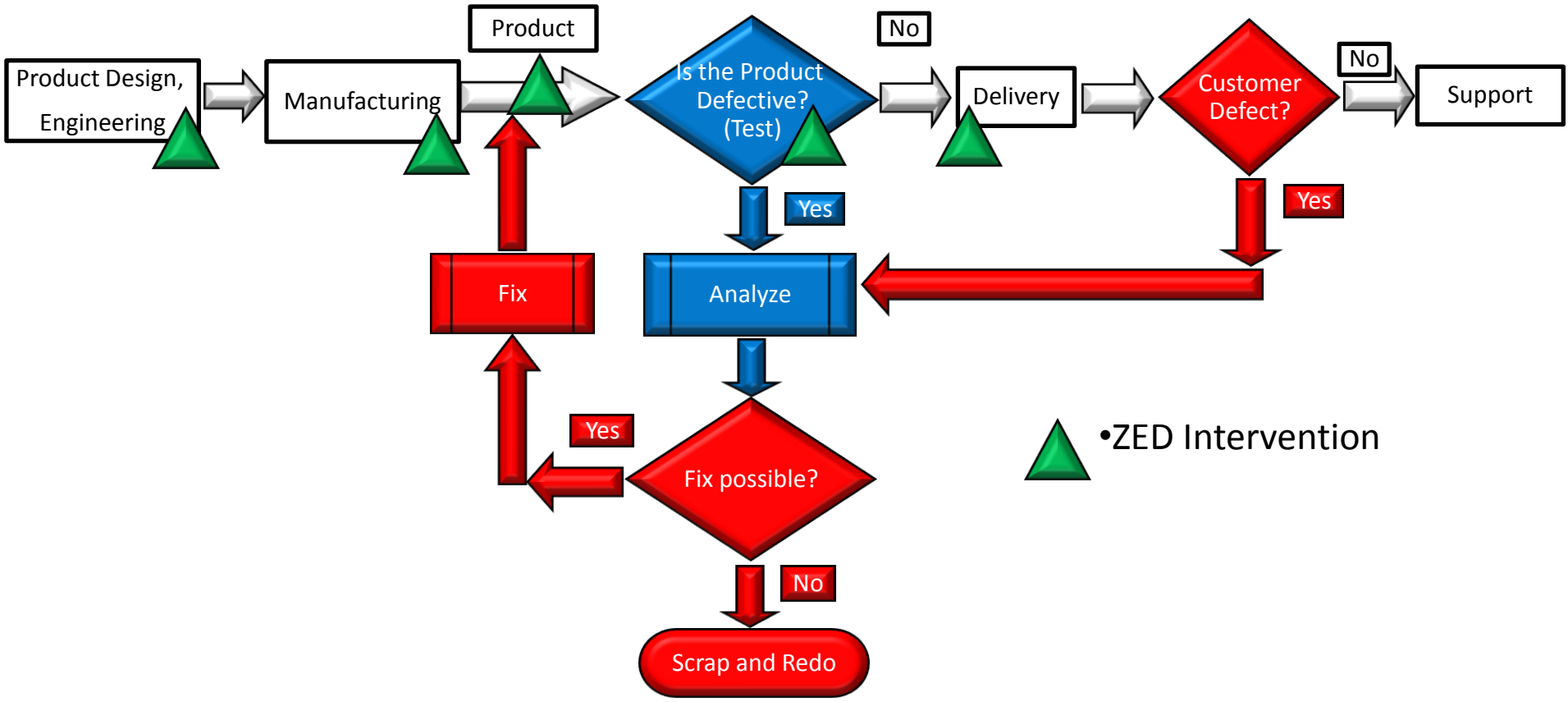
COQ Improvement Strategy





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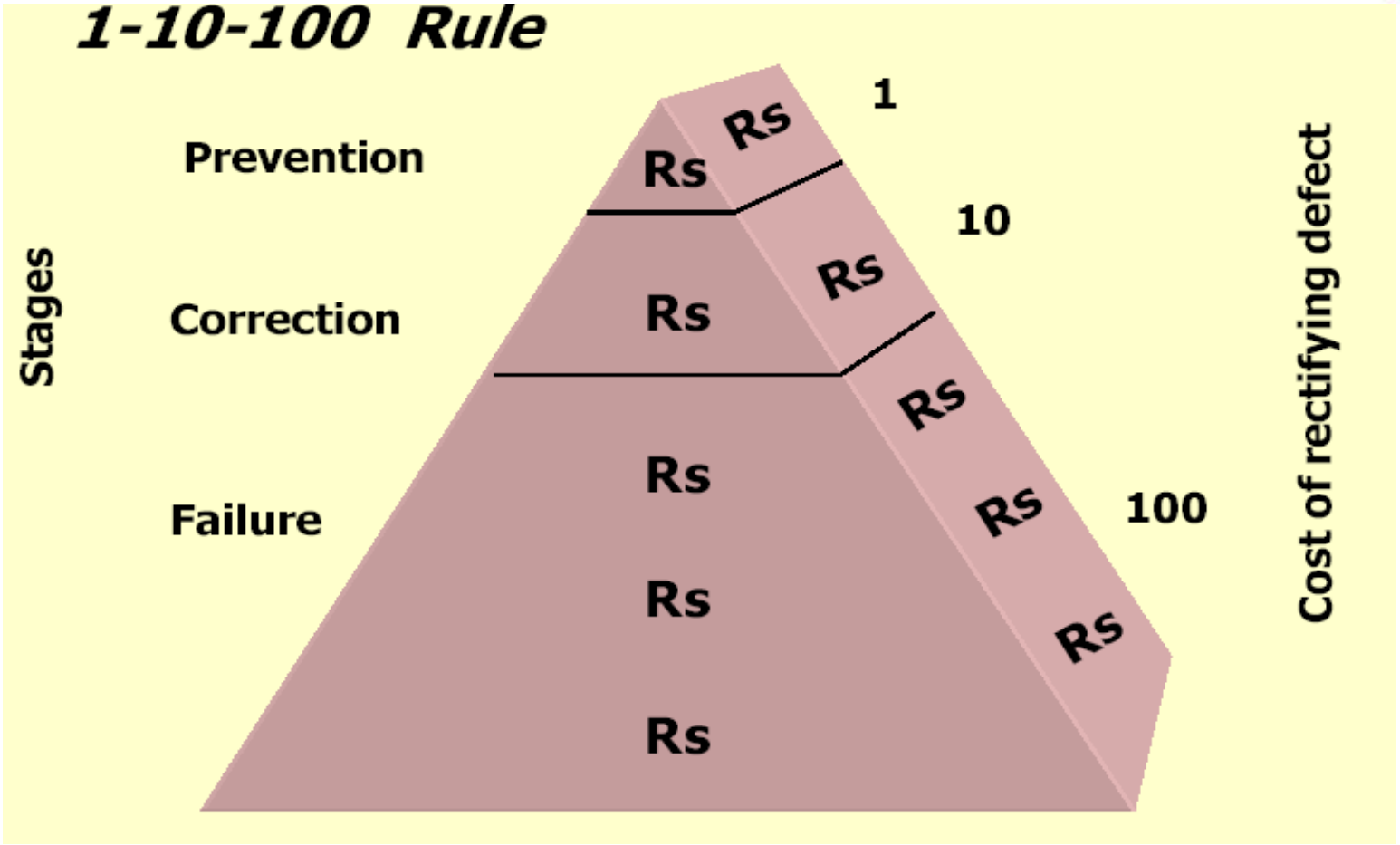

Introducing Prevention efforts during the development/engineering process would result in huge reduction in Failure effort

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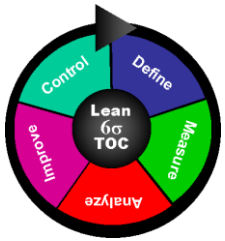

LEAN

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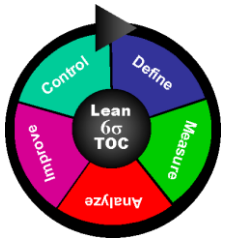

What is Lean ?

- Lean is about speed and efficiency
- Lean is about visual management
- Lean addresses on how to optimize process flow
- The theme of Lean is to eliminate waste

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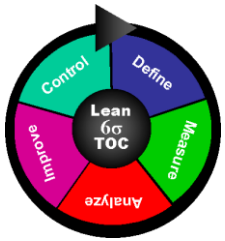


Why Visual Management?

The information reception of a human being happens via;

Eye: 83 %

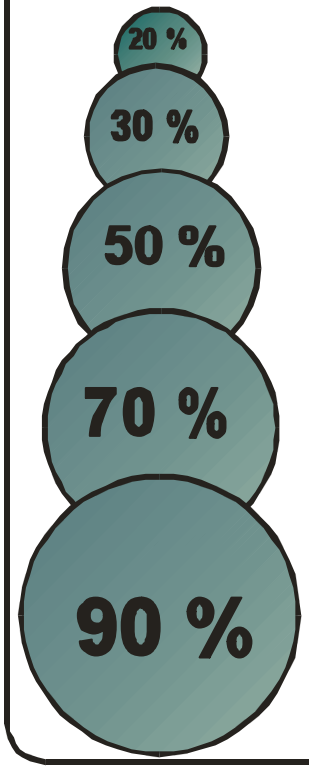
Ear: 11 %

Sense of smell: 3.5 %

Sense of touch: 1.5 %

Sense of taste: 1 %

Humans learn;



Through hearing

Through seeing

Through hearing and seeing

Through conversation

By hands on!

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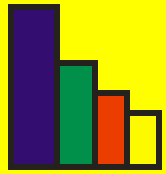
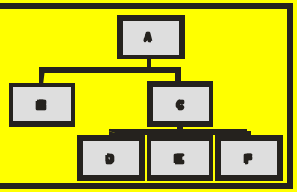
Goals of Visual Management?

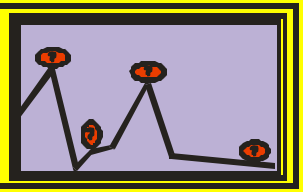
- Visualize strength and weaknesses



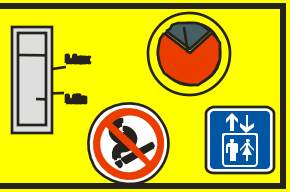
- Visualize structures and processes



- Show trends and corrective actions



- Create visual standards



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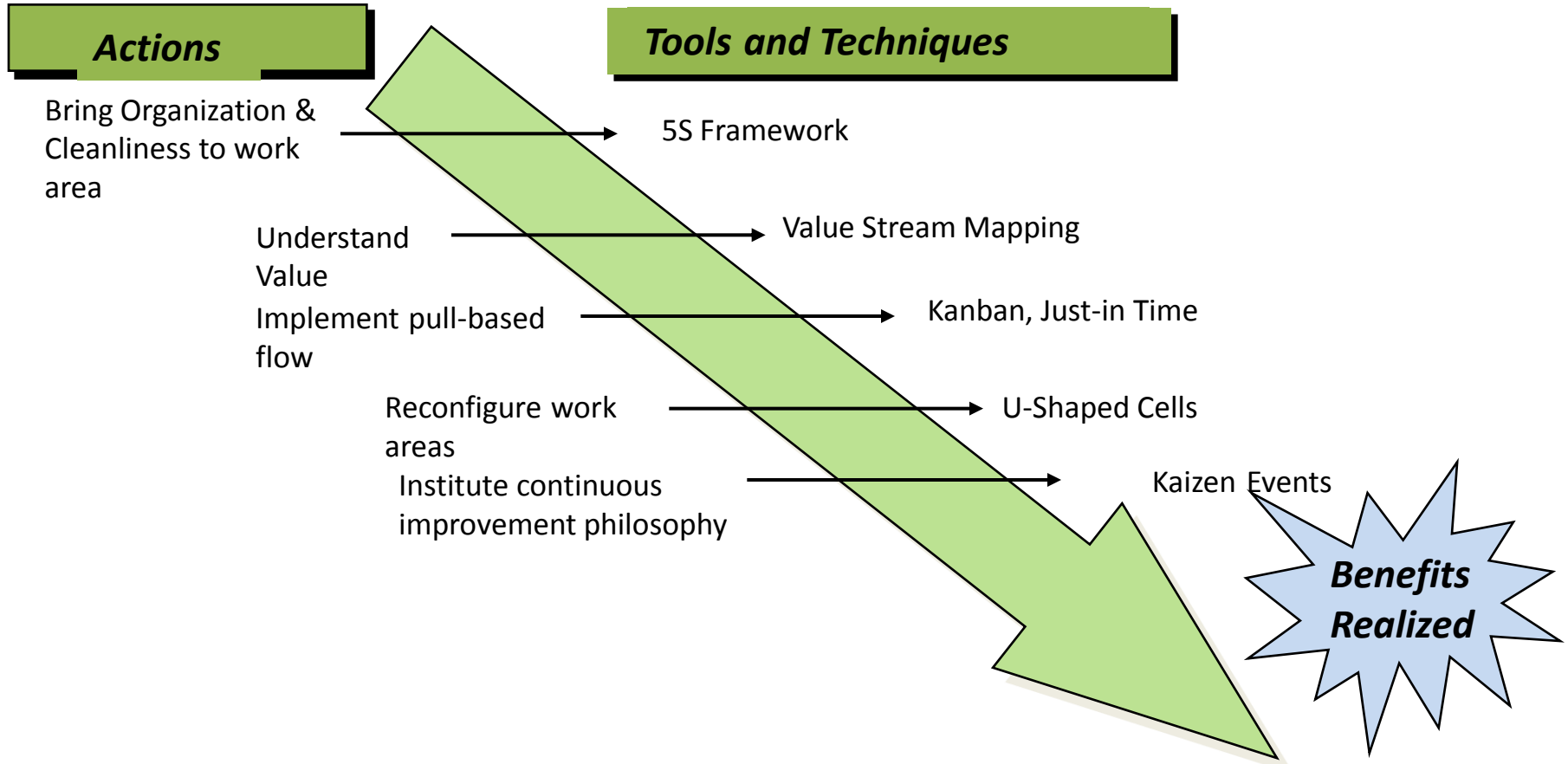
Lean Tools Overview

A number of Lean Tools and Techniques are available



Appropriate Tools and Techniques are to be used depending on the need

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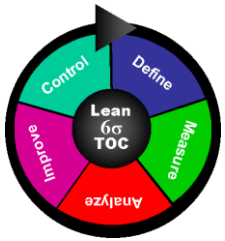
LEAN Tools for Control

What is 5S?



LEAN Tools for Control

- Muda
- Mura
- Muri

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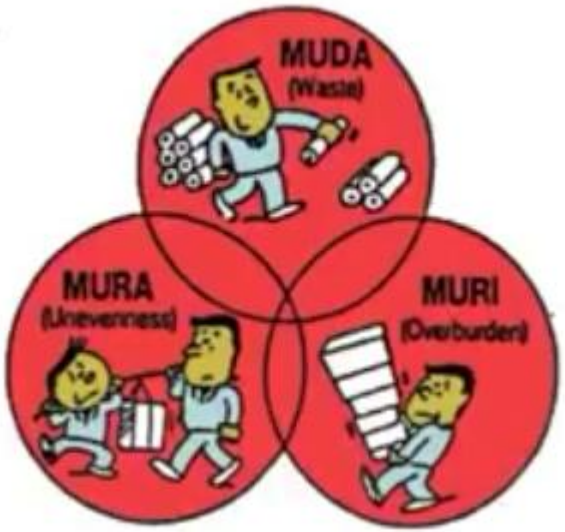
Reducing the 3 Ms

Work place design for reducing Muda, Mura, Muri (3M) in operations.



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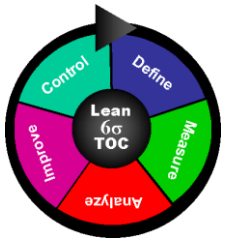

What is Muda ?

Muda means any wasteful activity or any obstruction to smooth flow of an activity

- **Activity = Work + Muda**
- **Expenditure = Cost + waste**

That is, for each activity there is expenditure and every work there is a cost associated.

Any expenditure on the **Muda** is a waste!

Therefore, Less **Muda = More happy clients** (as it impacts the quality, cost and delivery of products and services).

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T I M W O O D U

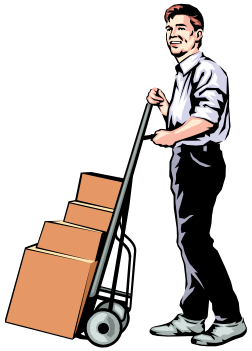
Overproduction

Transportation

Under-utilization of Employees

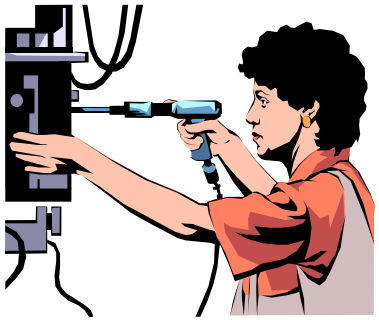
Eight *Wastes*

Motion



Defects

Over-processing



Waiting

Inventory

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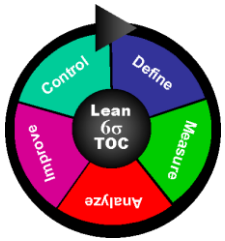
MUDA – Lean is a way to continuously eliminate waste



The Eight Deadly Wastes	Examples
Motion	Incorrect Layouts of office, factory, etc. Lack of Proximity Of Machines Off-line Resources
Waiting	Watching Machines Work Long Set-ups and Lead Times
Overproduction	Large Batches and Inventory Planning Full Utilization of Machines and Labor Producing More Goods than Marked Demand
Processing	Poor Machine Maintenance Unnecessary Processing Steps Longer Lead Times
Defects	Long Delays for Troubleshooting Costly Rework Dissatisfied Downstream Customers
Inventory	High Stocks of Raw Material, WIP, & Finished Goods Additional Space Requirements Clutter
Transportation	Unnecessary Movement Extra Handling "Moving Inventory"

People

Process

Product

At the end, everything results in Cost!!

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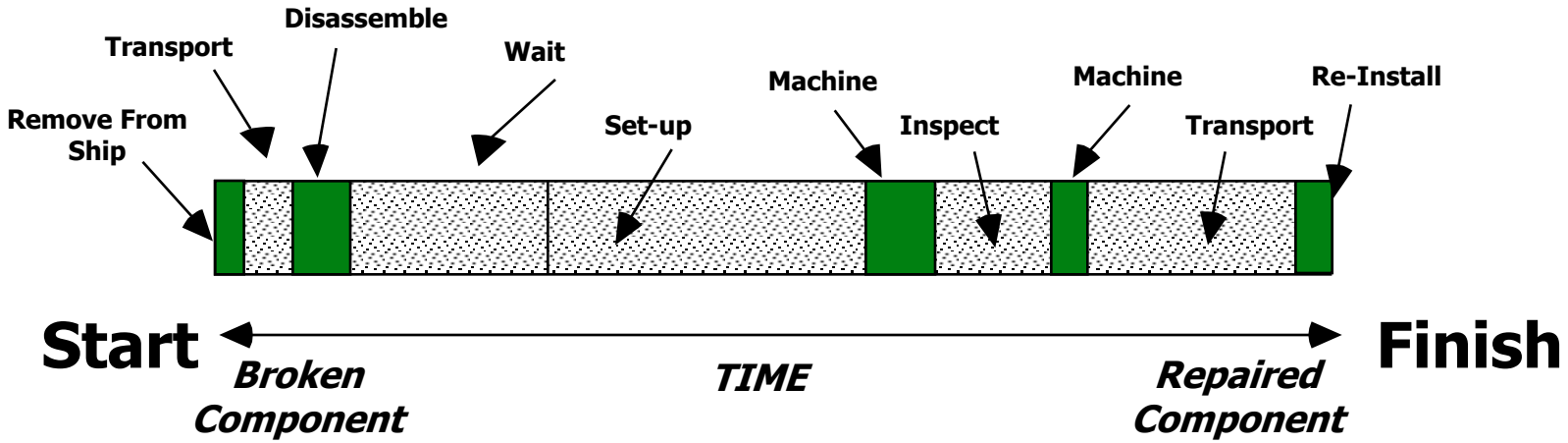
The value of Time

Within the 8 wastes, time is a significant factor

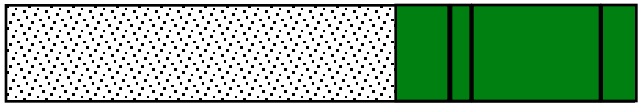
BEFORE ANALYSIS



= Value-Added Time **= Non-Value-Added Time (WASTE)**

Value-added time is only a very small % of the total time.

AFTER IMPROVEMENTS



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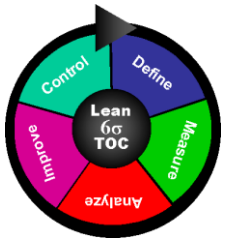

What is Mura ?

Mura = Inconsistencies in the system

- Happens sometimes?
- Happens some places?
- Happens to some people?

One part is ok; the other part is not ok?

STANDARDIZATION OF POLICIES, PROCEDURES, AND PROCESSES LEADS TO ELIMINATION OF MURA.

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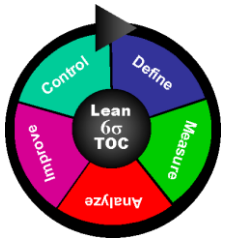

What is Muri ?

Muri = Physical Strain

- Bend to work?
- Push hard?
- Poor Lighting?
- Unclean Air?
- Repeat tiring action?
- Wasteful walk?

PHYSICAL STRAIN REDUCES THE ENJOYABILITY AND EFFECTIVENESS OF A PROCESS. IT ALSO REDUCES EFFICIENCY.

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Reducing the 3 Ms

Muri = overburdened

Mura = unevenness, fluctuation, variation

Muda = waste

No Muri, Mura, or Muda

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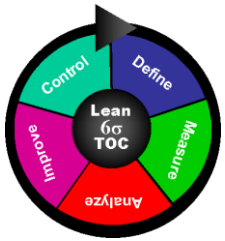


LEAN Tools for Control

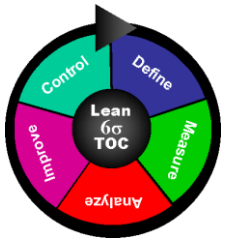
What is Kaizen?

KAI	ZEN
To modify, to change	make good, make better

= KAIZEN

Make it easier by studying it, and making the improvement through elimination of waste.

Kaizen means improvement. Moreover, it means continuing improvement in one's personal life, home life and working life. When applied to the workplace, Kaizen means continuing improvement that involves everyone - managers and workers alike.



What is Kaizen ?

Originally a Buddhist term KAIZEN comes from the word Renew The Heart and Make it Good, therefore adoption of KAIZEN concept also requires changes in "the Hearts of Business Corporate Culture", thus translating the Corporate Vision in every aspect of Organization's/Company's operational practices.

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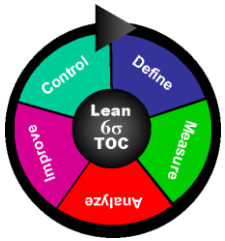

Kaizen is a journey of changing our Habits to improve

And Culture is defined as cluster of Habits

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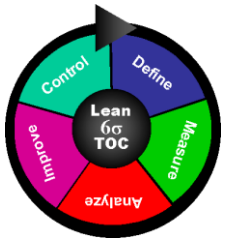

The Drivers of Success

SUCCESS

Strategy Excellence

Operation Excellence

Management to focus more here as this will lead to **DIFOTAI**

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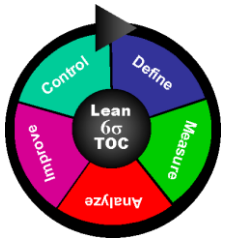
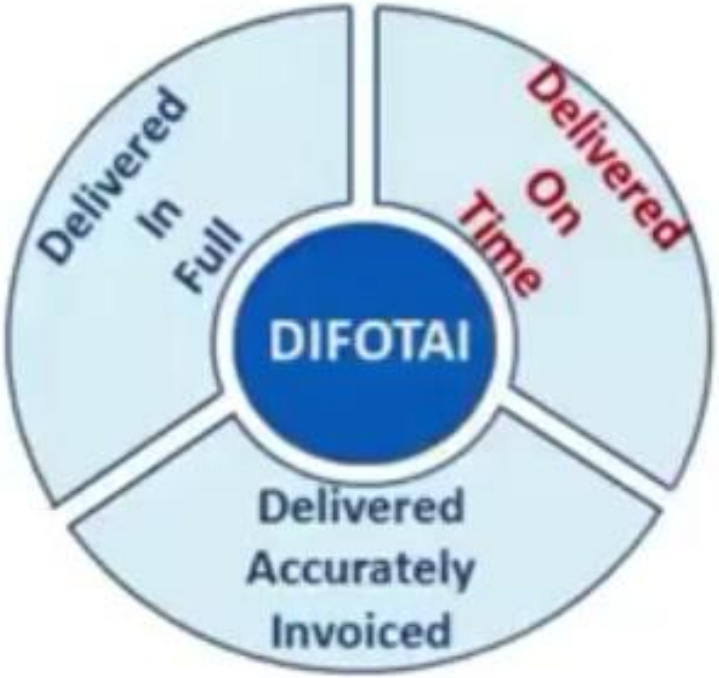


- What percentage of orders delivered **On Time in Full**



It is the Fundamental right of the CUSTOMER

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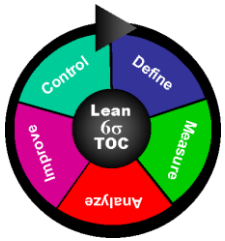

The Drivers of Improving Operations

OPERATION

Addition	Deletion
Requires Money Which is difficult/ tough	Require unfolding the creativity of all top to bottom i.e. various Kaizens

Thumb Rule: Delete before you ask for More

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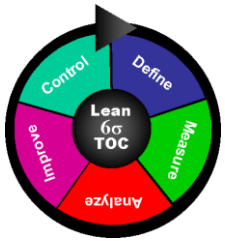

What to delete?

For any process to deliver the desired result there are 2 type of Work.

Useful Work + **Wasteful work** = **Total work**

COST + **WASTED COST** = **TOTAL COST**

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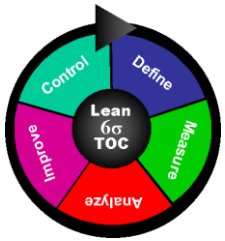
Total Work



Value adding
OPTIMIZE

5%

Primary focus of Traditional efficiency improvement

Necessary but not value adding
MINIMIZE

35%

Non Value adding
WASTE
ELIMINATE

60%

Primary focus of
LEAN improvement

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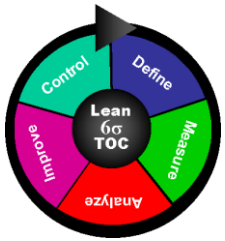

Taichi Ohno defined Lean as, "All we are doing is looking at the time line from the moment the customer gives us an order to the point when we collect cash. And we are reducing the time line by removing the non-value added waste.

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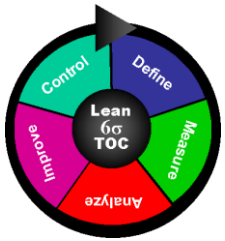

What is Flow?

A process where target object moves quickly from value adding activity to value adding activity without interruption of any of 8 types of Mudas.

Organizations must improve MATERIAL & INFORMATION FLOW which will help their **CASH FLOW**

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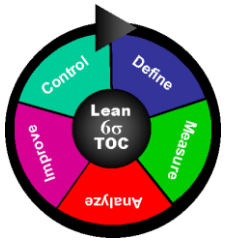

The Key Focus is on FLOW i.e. remove all the hurdles in all the Operations

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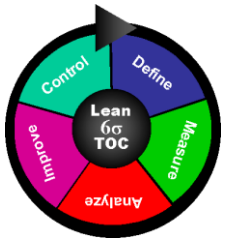

Changing the Mindset to Implement Kaizen Strategy

From	To
➢ No Day	➢ Every Day
➢ No One	➢ Every One
➢ No Where	➢ Every Where

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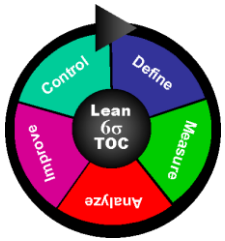

Six Sigma

Welcome to the world beyond 99.9997% , the Six Sigma world .....the sure shot way for Climbing the Ladder of Success and prosperity

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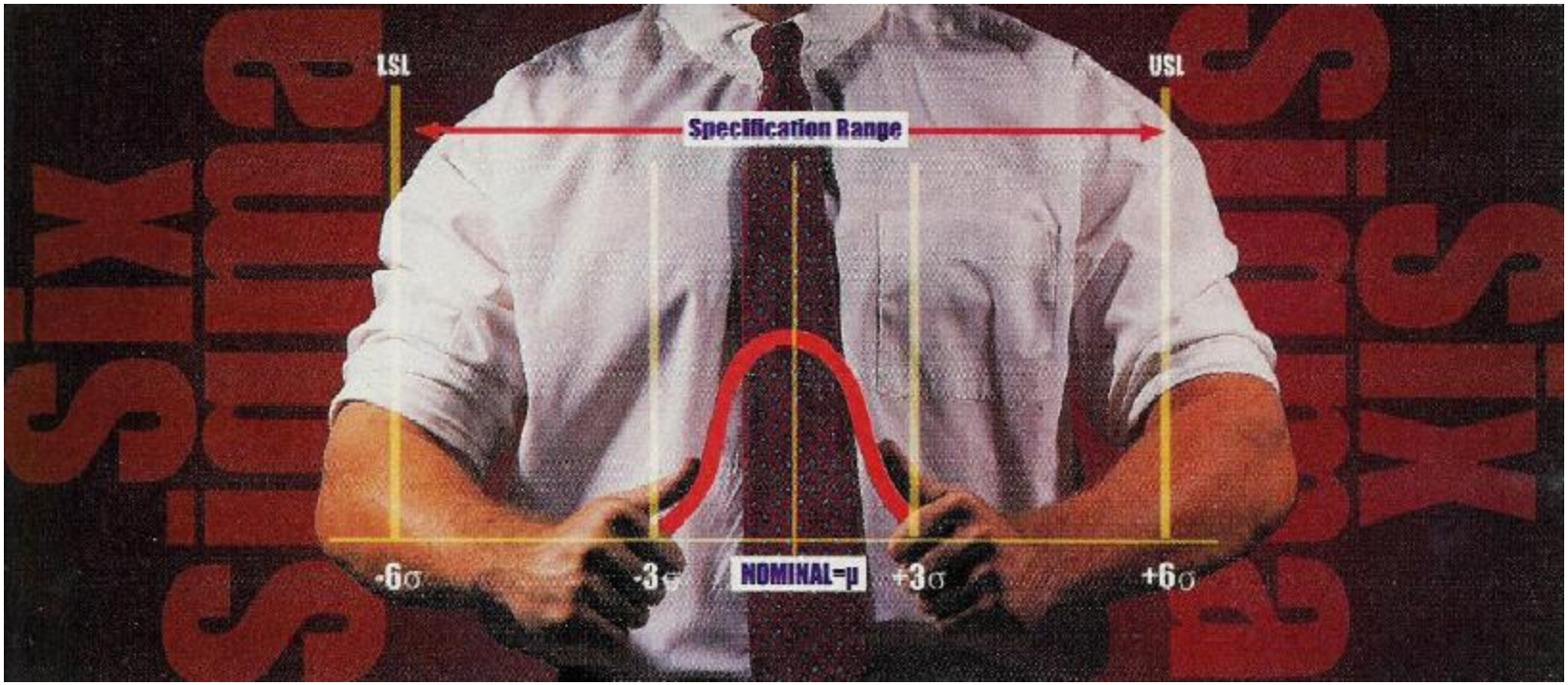
What is Six Sigma?



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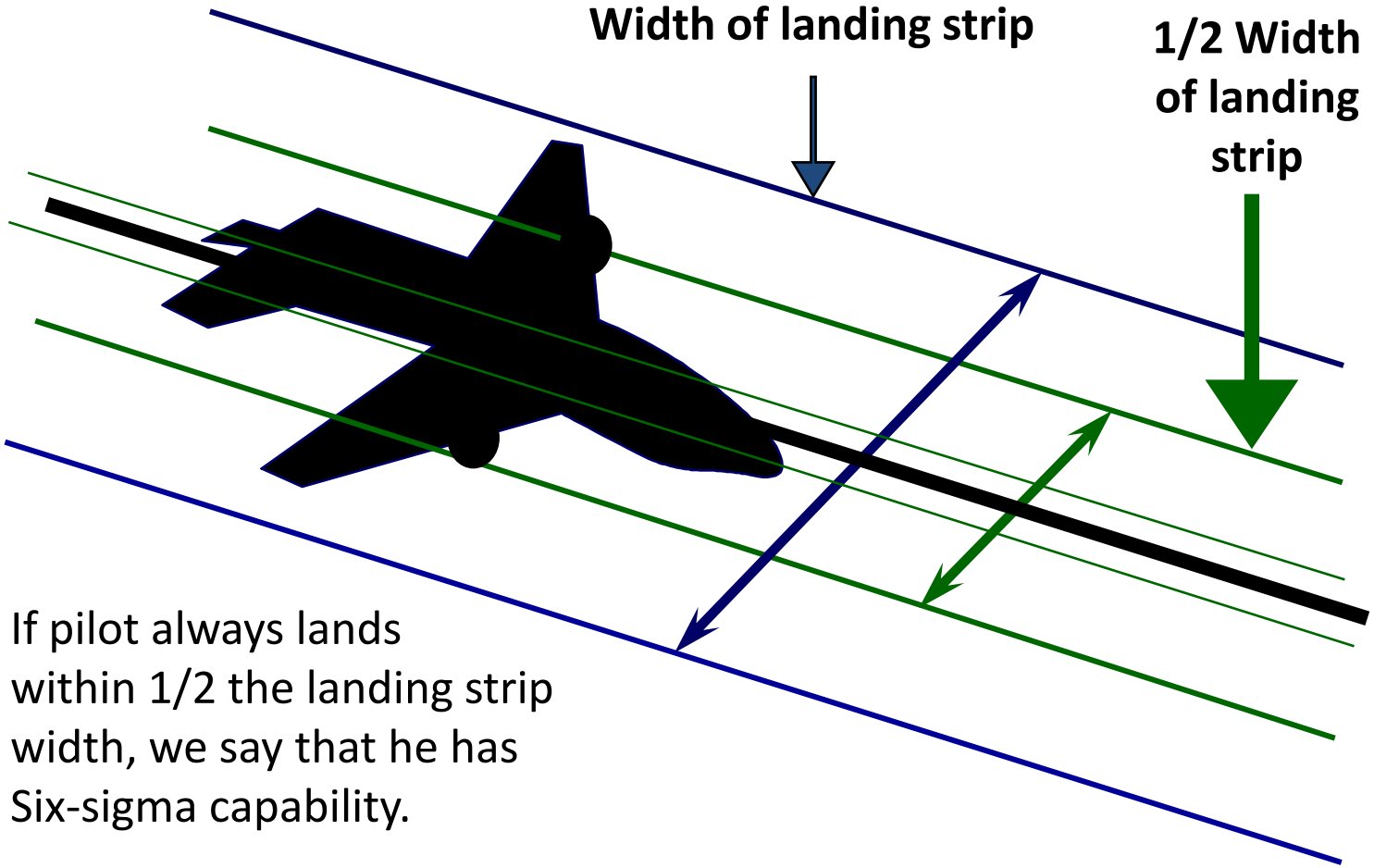
Pilot's Six-Sigma Performance



If pilot always lands within 1/2 the landing strip width, we say that he has Six-sigma capability.

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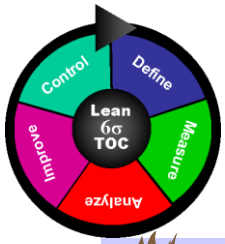

6σ Philosophy

- Our survival is dependent upon growing the business
- Our business growth is largely determined by customer satisfaction
- Customer satisfaction is governed by quality, price, service and delivery
- Quality, price, service and delivery are controlled by process capability
- Our Process capability is greatly limited by variation
- Process variation leads to an increase in defects, cost, and cycle time
- To eliminate variation, we must apply the right knowledge
- In order to apply the right knowledge, we must first measure it
- Measure the problem, we'll get the right knowledge

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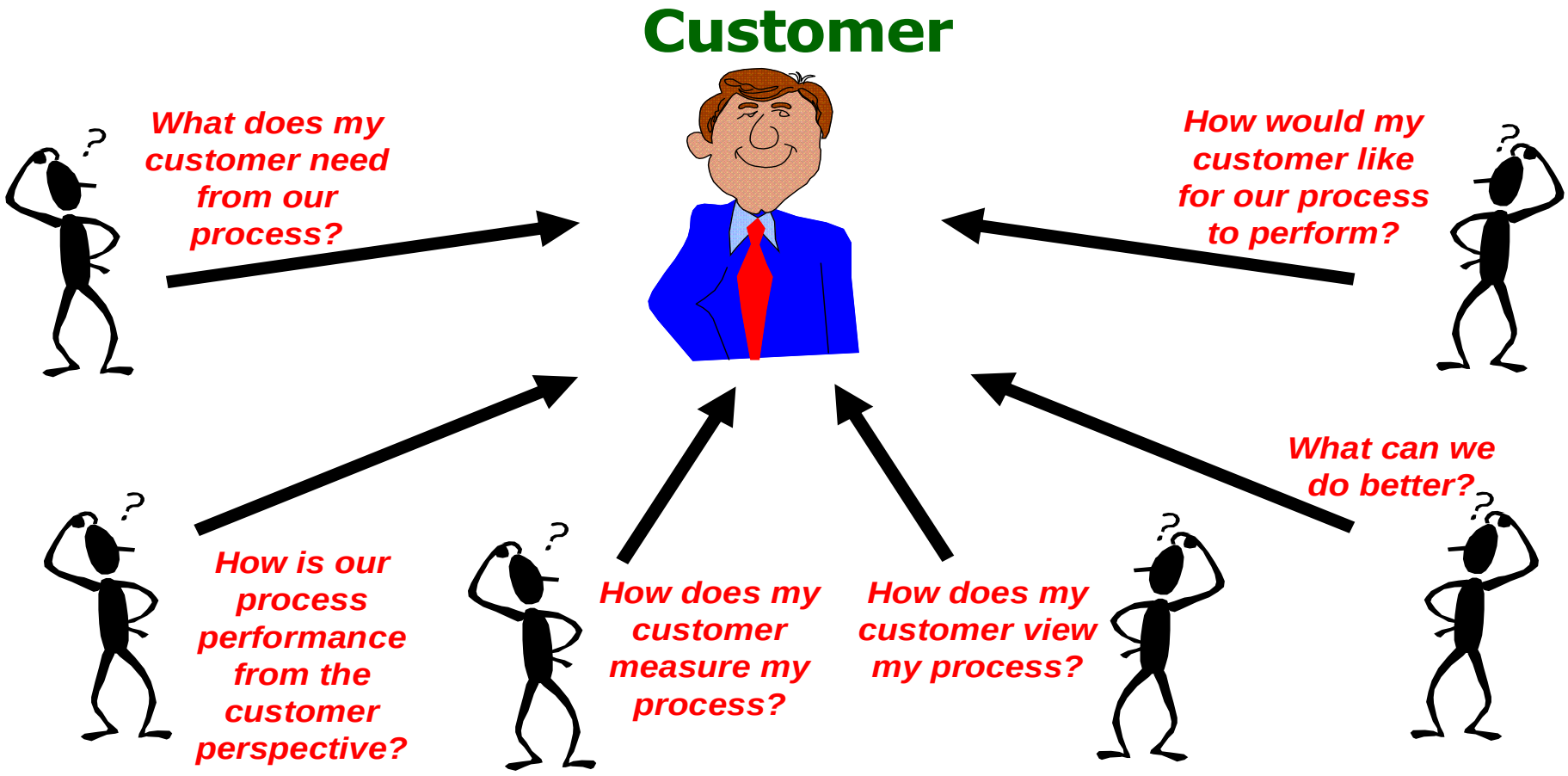
Customer Centricity – The Cornerstone of 6-Sigma



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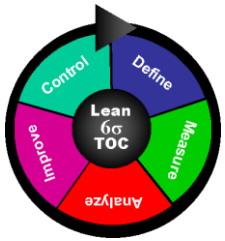

What is Six Sigma?

Six Sigma – Formal Definition Six Sigma can be viewed as (4S)

- **Systematic**
- **Scientific**
- **Statistical**
- **Smarter**

Set of management methodologies to improve any aspect of the business / organization in areas like:

- **Customer Satisfaction**
- **Internal Business Processes**
- **People Development**
- **Business Strategy**

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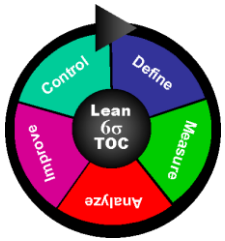


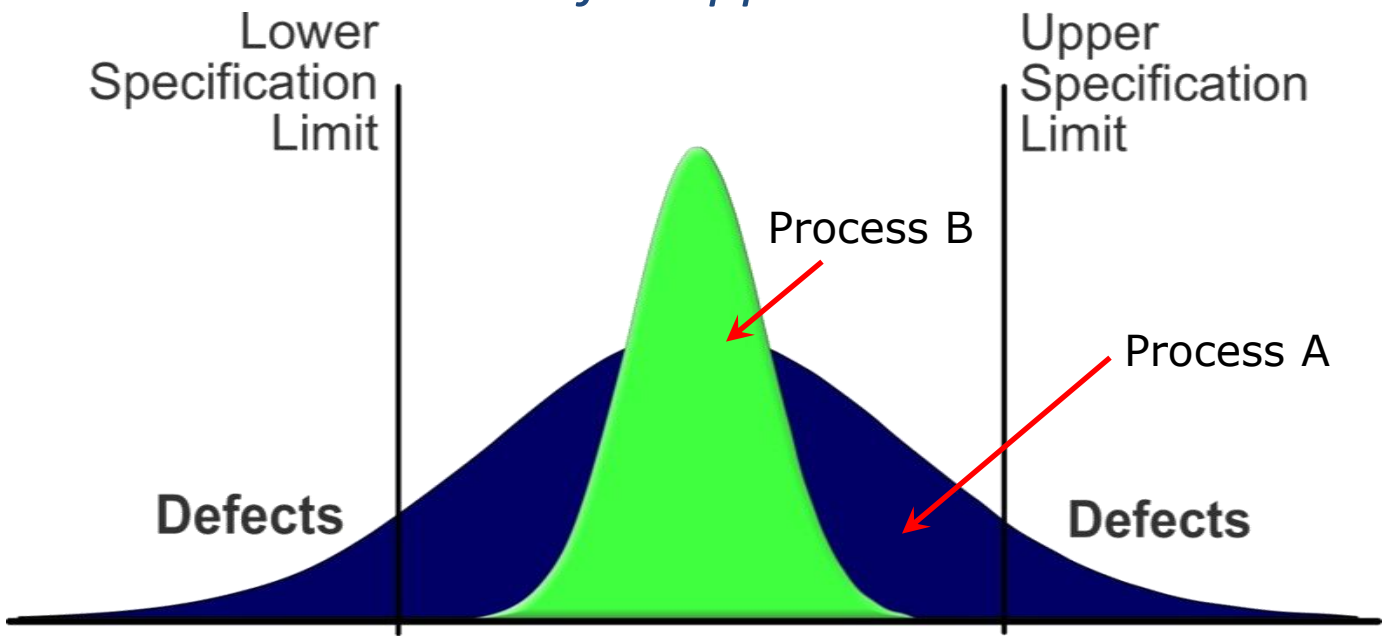
Theme of Six Sigma is to reduce/eliminate Variation

Based on Statistical Thinking

- All work is a series of process
- All processes have variation
- Businesses improve when they reduce or eliminate variation

"In God we trust, everyone else bring data."

Shift Happens



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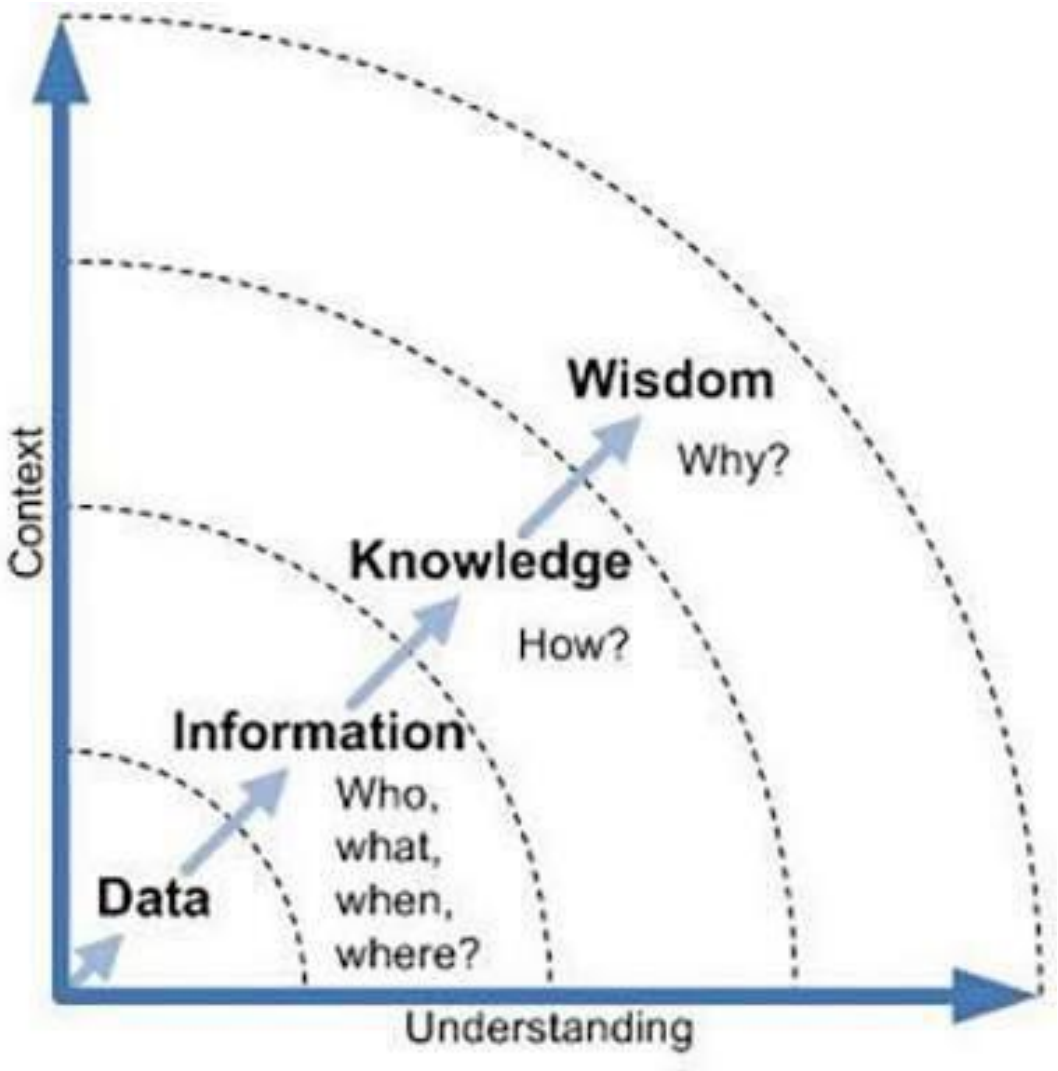
Data to Wisdom



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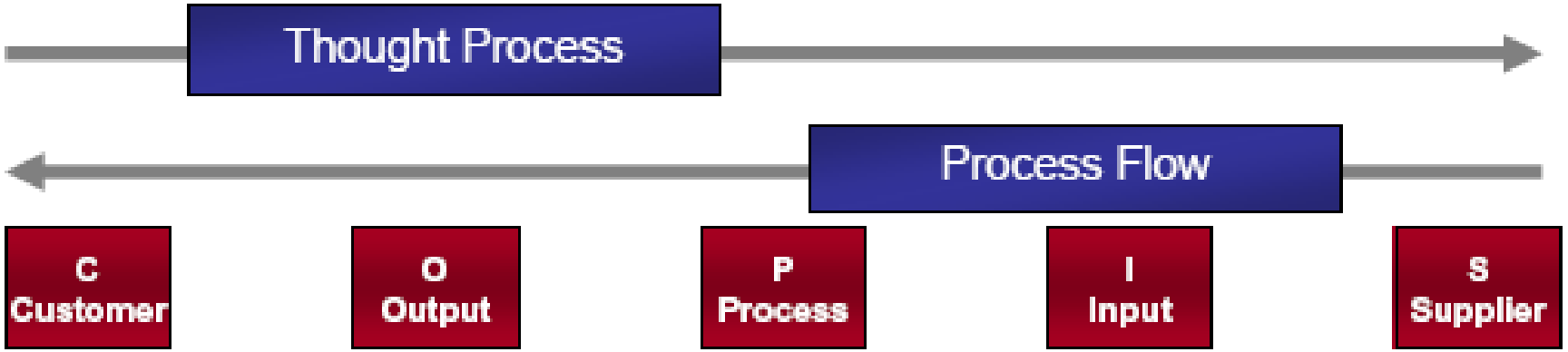
COPIS / SIPOC

- Puts process and customer in perspective
- Depicts process flow
- Highlights process boundaries and interdependencies
- SIPOC/ COPIS maps customer and process interaction by defining customer requirement and steps taken to deliver the desired output



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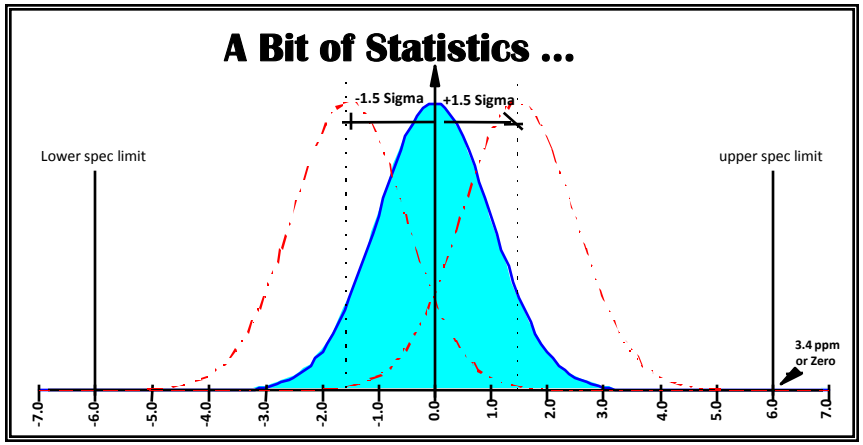
The Concept of Six Sigma



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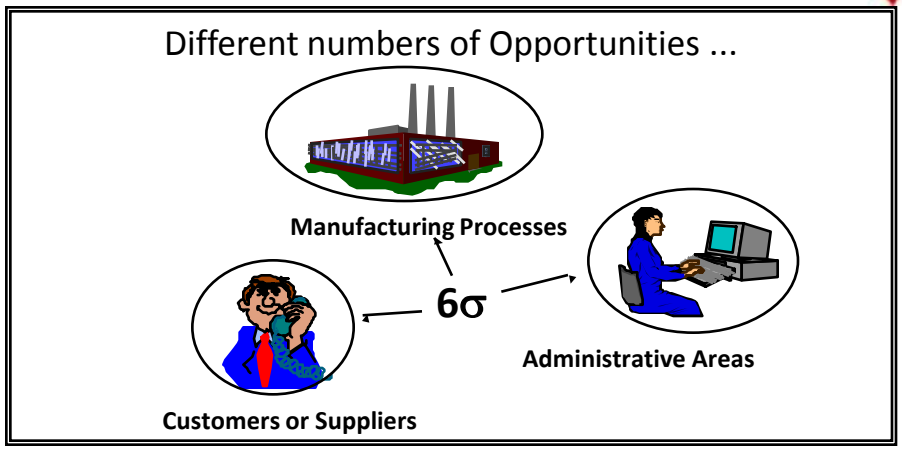

= A structural approach to continuous improvement

(or " Six steps toward excellence")

1 - Identify the product or service you provide

2 - Identify your customers & their requirements

3 - Determine your needs & suppliers

4 - Define the process for doing work

5 - Eliminate defect sources / optimize the process

6 - Continuously improve the Sigma level

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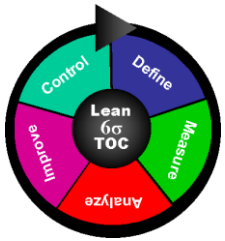

Why Six Sigma?

- Six Sigma provides **Value enrichment** for the customer and provider in every aspect of business relationship.
- Six Sigma embodies a structured system of capturing all types of errors and their quantified measurement for subsequent analysis and improvement.
- The measurement based approach of Six Sigma enables us to find:
  - Vast areas of business about which **we do not know** enough.
  - When we do not know about a parameter or a characteristic which are important to customers, **we do not value it**.
  - **If we do not value a parameter or a characteristic, we do not measure it.**
  - If we do not measure, **we can not improve**.

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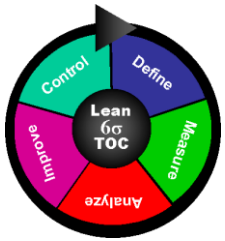


Six Sigma Process Improvement

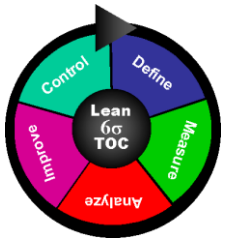
Define
- Goals, scope, and business case
- Understand the problem, context, and reqts

Measure
- Identify prospective causes and drivers
- Gather the data

Analyze
- Distill the data:
  - Identify the causes and drivers
  - Verify factor influences and interactions

Improve
- Generate improvement options
- Select best solution
- Pilot the solution, documenting results

Control
- Scale and standardize improvements
- Document and spread the learning



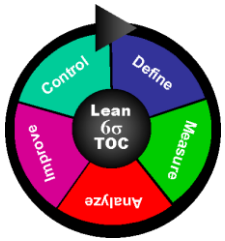
Six Sigma Process Improvement

Design for Six Sigma (DFSS)

Growing Top line Business Value

Project Selection	Define	Measure	Analyze	Design	Verify
Business Motivation	Detail Goals and Scope	Characterize and Verify Requirements	Characterize Solution Alternatives	"Build" the New or Improved Product or Service	Verify Business Results Realization
Strategic Fit	Select Team	"Flowdown" Results Measures to Driving Factors	Forecast Results	Identify and Manage Risk	Transfer Control
Assess Net Benefit	Understand Customers and the Environment	Set Capability Targets	Balance VOC, VOB, Technology	Track and Optimize Performance	Monitor and Manage Performance
Assign Champion	Identify Requirements and Measures	Gather Data	Develop Implementation Plan	Document Improved Capability	

Tollgate Reviews
Provide the Crucial Leadership Connection



Goals of Six Sigma

- Reduce defects in any process to less than 3.4 defects per million operations
- Eliminate wasteful practices
- Delight Internal & External Customer
- Ultimate goal is to increase ROI for the organization

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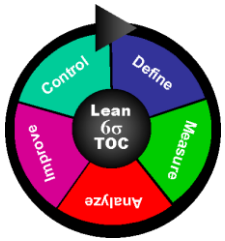

Six Sigma helps Organizations in ….

- Reducing cost of production thereby; Increased Profits
- Develop innovative products by utilizing the Creativity &Talent of Employees
- Promotes Cross Functional cooperation
- Makes you Result Oriented
- Helps Employees to perform Better & Better in their jobs

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Lean Six Sigma

Delight Customer

Improve Processes

Quality

Speed

Variation & Defects

Process Flow

Data and Facts

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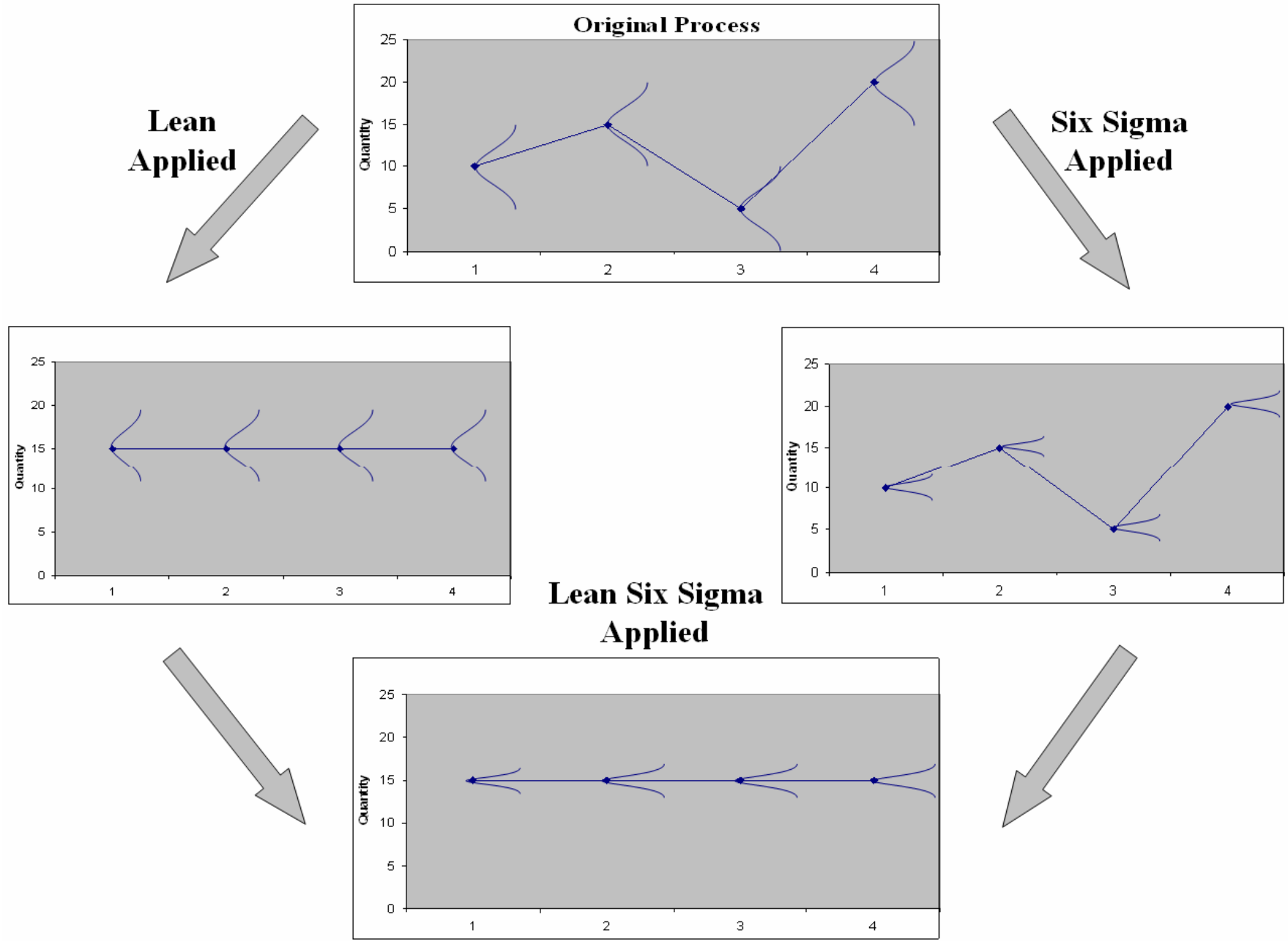
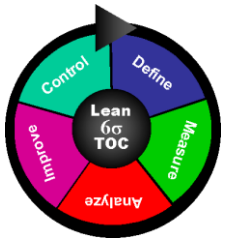
How Lean Six Sigma Attacks Flow and Variation





A pragmatic (practical) approach is required: use Lean and Six Sigma where necessary, or use Lean where Lean is necessary or Six Sigma where Six Sigma is necessary. Combining Common Sense (LEAN) and Common Science (SIX SIGMA) offers the potential to achieve UNCOMMON RESULTS.

Lean + Six Sigma = Profit Power

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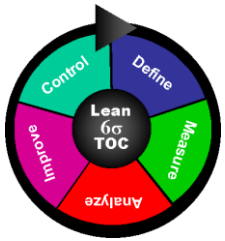

Total Quality Management (TQM)

Total = Quality involves everyone and all activities in the company / everyone in the organization must be involved in the continuous improvement effort

Quality = Conformance to Requirements, shows a concern for customer satisfaction

Management = Quality can and must be managed, of the people and processes needed to achieve the quality

TQM = A process for managing quality; it must be a continuous way of life; a philosophy of perpetual improvement in everything we do

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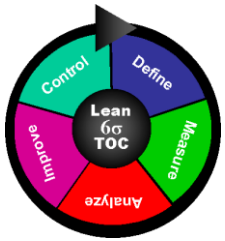

Why TQM?

Constant drive for continuous improvement and learning.

Management by fact

Concern for employee involvement and development

Results Focus

Passion to deliver customer value

Organisation responsibility

Actions not just words (implementation)

Process Management

Partnership perspective (internal/external)

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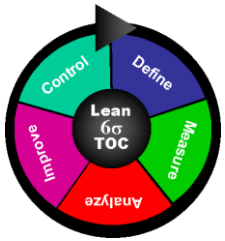

TQM Process models

Process Analysis

- Flowcharting of activities
- Core Processes
- Supporting Processes
- Measurement and Improvement
- Example – cost of quality

Charismatic

- A leader of great stature
- Process Steps

Integrated

- Teach the language
- Everybody into teams
- Start projects
- Measure successes
- Disband projects

Excellence

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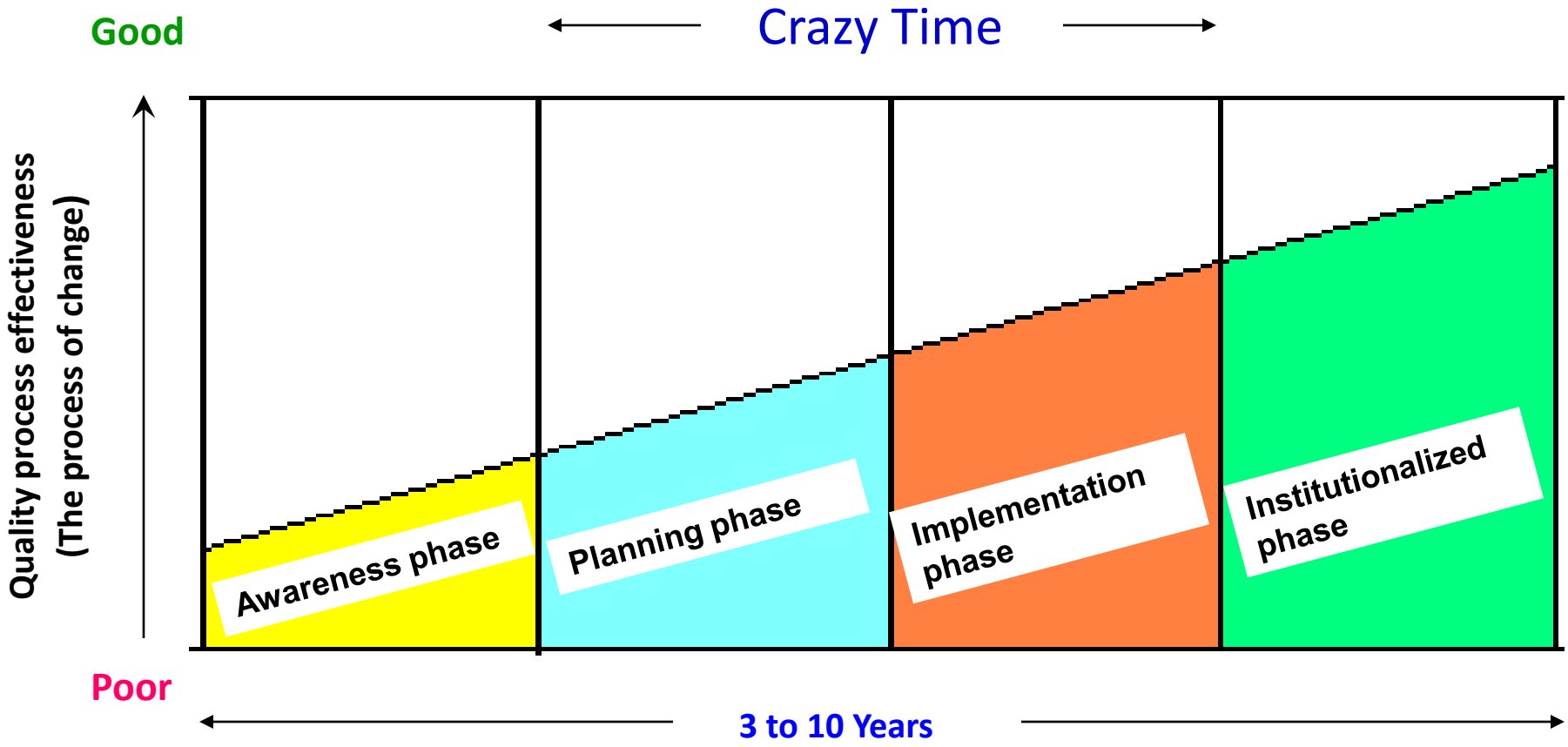
TQM takes time



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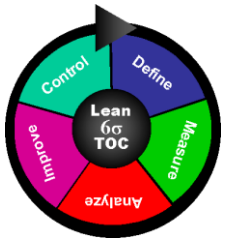

To implement QMT

Change in the Mindset is required

Everybody wants to Improve but no body wants to CHANGE, so nobody improves

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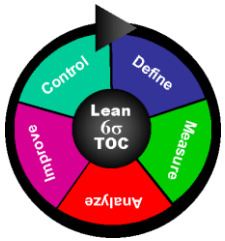

Companies realized that to implement QMT and transit to World Class Manufacturing (WCM) they would require to under go change and need to manage change.

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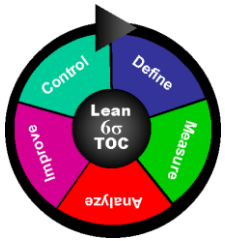

Managing Complex Change

Vision + Skill + Incentive + Resources + Action plan = CHANGE

+ Skill + Incentive + Resources + Action plan = Confusion

Vision + + Incentive + Resources + Action plan = Anxiety

Vision + Skill + + Resources + Action plan = Gradual Change

Vision + Skill + Incentive + + Action plan = Frustration

Vision + Skill + Incentive + Resources + = False Start

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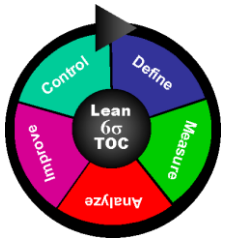

ZED, Lean, Six Sigma, & TQM Cultural Change Model

From		To
Management	→	Leadership
People are cost burden	→	People are assets
Short term objectives	→	Long term mission
Profit	→	Customer satisfaction
Quality is high cost	→	Quality is free
Management driven	→	Data driven decisions
Reactive	→	Proactive
Detection oriented	→	Prevention oriented
Focus on results	→	Focus on process
Quality by inspection	→	Quality by intent

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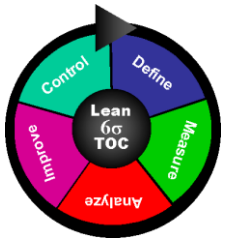

TQM, Lean, Six Sigma, TOC & ZED Cultural Change Model

From		To
Meets specifications	→	Close to target value
Compartmentalized experts	→	Learning organization
Positional power	→	Employee empowerment
Sequential engineering	→	Concurrent engineering
Management by control	→	Employee commitment
Individual heroism	→	Teamwork
Competition/confrontation	→	Cooperation/partnership
Functional group success	→	Organization success
Top down communication	→	Multidirectional comm.
Get product out	→	Exceed customer expectation

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The CCEO priority

Community
Environment
Job opportunities
Facilities

Customers
Reliability
Predictability
Value for money
On Time delivery
Problems solved

Organizations Implementing QMT

Owners
Return on inv.
Predictability
Increased asset val.
Confidence
Positive image

Employees
Reward
Recognition
Safety, Hygiene & security
Growth

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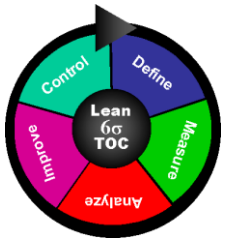

18 THINGS MENTALLY STRONG PEOPLE DO

They reflect on their progress
They move on
They keep control
They tolerate discomfort
They think productively
They embrace change
They expend their mental energy wisely
They stay happy
They evaluate their core beliefs
They are kind
They have staying power
They are willing to take calculated risks
They are prepared to work and succeed on their own merits
They invest their energy in the present
They enjoy their time alone
They accept full responsibility for their past behavior
They are willing to fail
They celebrate other people's success

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THE PHYLOSOPHY

"ECO-BALANCING"

Business is not only a means for survival, but is also a tool for improvement of the society. The service that you render today has long lasting impacts and effects on you and your world. Try to keep them positive and minimize negatives to the best of your capability and extent possible.

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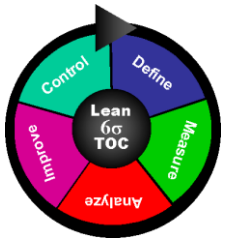

Thank you

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