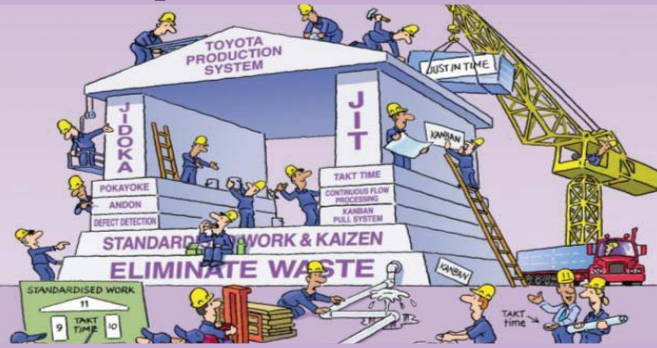


# Lean Manufacturing Implementation in SMEs

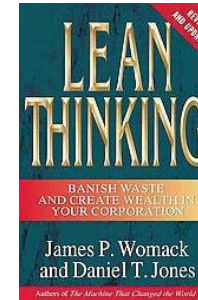


Akhilesh N. Singh Lean Management Consultant

## Presentation Outline

- **Sharing the hands-on experiences** of a Consultant in implementation of Lean Manufacturing in a SME cluster
- **Step-by-step approach** followed in Lean Implementation
- **Results** of Lean Implementation
- **Problems faced** during Lean implementation
- **Recommendations** for improvement in the Lean Manufacturing Scheme
- **Ongoing Initiatives** on Lean promotion

## What is Lean Manufacturing?



- A new way of **Thinking**
- Change in the **Mindset** about purpose, process and people
- Change in the way of **Working**
- Change in the **Culture** of organization

## Goal of a SME Organization?



What is ultimate Goal of a Business Organization?

## Ultimate Goal of the organization....

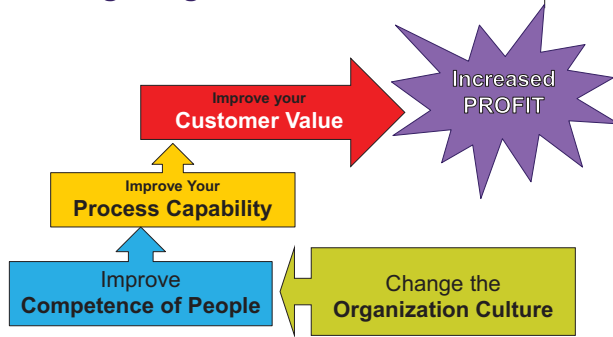


## Growth in the four Areas



- Customer Value
- Process Perfection
- People Competence
- Organization Culture

“Profit is natural by-product of doing things well” - Tom Peters



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What is preventing Growth of SME?



What is preventing Growth of SME?



Lean Manufacturing for Growth of SMEs  
Lean Manufacturing Competitiveness Scheme-Ministry of MSME



- Launched by Government of India on 29<sup>th</sup> July 2009
- 100 SME clusters covering 1000 SMEs of India

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Lean approach to make GROWTH



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**LEAN**  
MANUFACTURING

Implementation in Faridabad  
Auto-Component Cluster

(March 2010-Feb.2011)

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## Faridabad Auto Component Cluster (Units & Their Products)



Unit	Products
1. Admach Industries	Sheet Metal Components
2. DM Enterprise	Sheet Metal Components
3. Macro Autotech	Sheet Metal Components
4. Panchal Mnfrng.	Sheet Metal Components
5. Presswell Tools	Sheet Metal Components
6. Shri Bhikshu Comp	Sheet Metal Components
7. Vishwas Engg.	Sheet Metal Components
8. Champion Comp.	Fabricated Items
9. Kismet Industries	Fabricated Items
10. Gopal Sons	Machined Components
11. Shyam Ispat	Castings
12. Avon Tube Tech	Steel Tubes
13. Techno Springs	Steel Springs



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Lean Implementation in Faridabad Autocomponent Cluster- Akhilesh N.Singh

Lean Implementation in Faridabad Autocomponent Cluster- Akhilesh N.Singh

Lean Implementation in Faridabad Autocomponent Cluster- Akhilesh N.Singh



## Lean Diagnosis

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### SMEs are full of Waste!

- Flooded with plenty of inventory
- Poor On-time delivery
- High rate of defects/re-work
- Disorganized workplace
- No data related to process performance
- No awareness of concept of Waste
- No formal training system
- No scientific production planning
- No preventive maintenance
- Busy in settling customer complaints
- **Having more demand than they can supply!**

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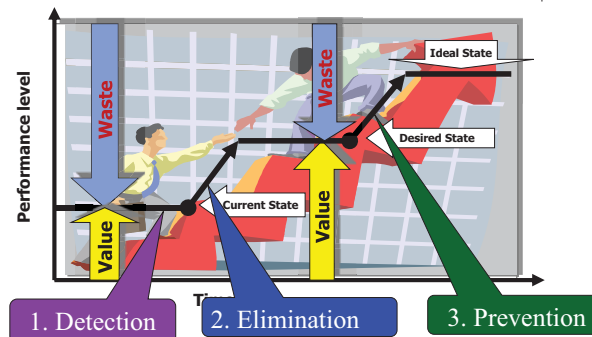
### Objectives of Lean

To Create:

- **Value for the Customer**
  - Improve *Quality*
  - Improve *'On Time Delivery'*
  - Competitive *Price*
- **Wealth for the Organization**
  - Improve *Profit Margin*
  - Reduce *Cost*
  - Improve *Productivity*

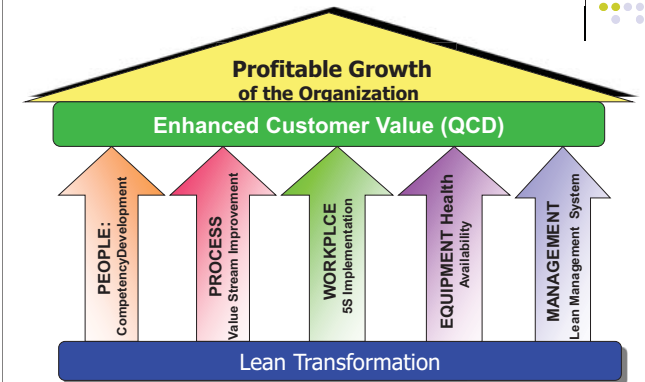
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### Steps to eliminate Waste



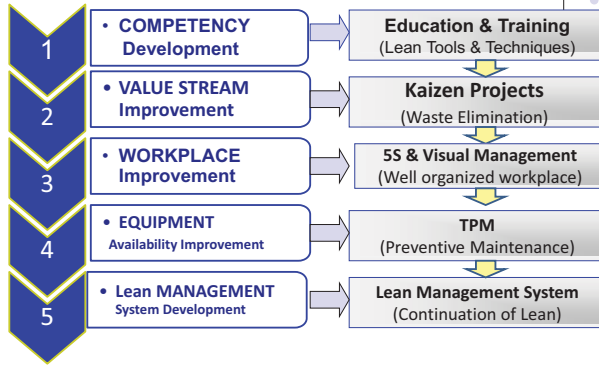
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### Lean Transformation Strategy



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## Lean Implementation Framework



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## Lean Implementation Schedule (March 2010- February 2011)



#	Consulting Projects	Phase I April-May	II Jun-July	III Aug-Sept	IV Oct-Nov	V Dec-Jan
1	Lean Implementation Roadmap	█				
2	Lean Education & Training	█	█	█	█	█
3	5S & Visual Management	█	█	█	█	█
4	Kaizen Project-1		█	█	█	█
5	Kaizen Project-2			█	█	█
6	TPM Project				█	█
7	Lean Management System					█

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## Lean Implementation Through Kaizen Projects

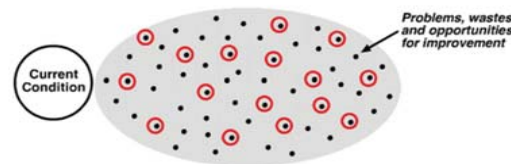


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## Lean: a new thinking for Improvement

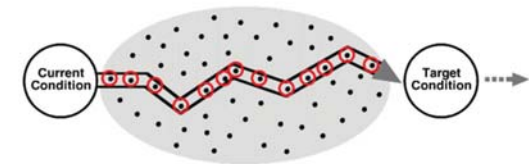


## Traditional approach to Improvement



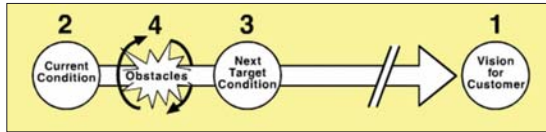
- Whenever we face a problem, we try to solve locally as an isolated island and feel that we have solved the problem!
- But in reality there is no sustainable benefit of the solution.

## The Lean approach to Improvement



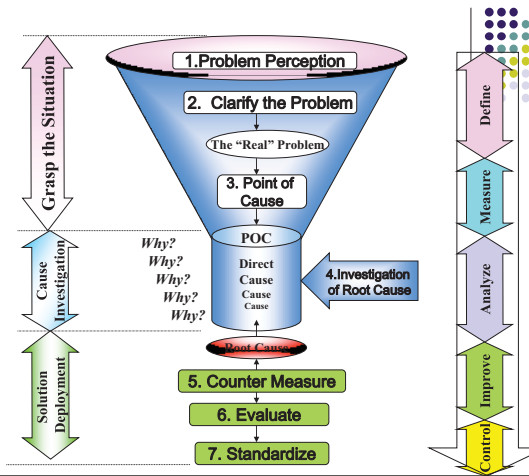
- With the Lean Kaizen approach you work step-by-step on a well connected value creating chain (value stream) with a clearly defined target aligned with the vision of company

## Lean: Value Stream Improvement



- Lean approach makes sustainable improvement which enhances customer value and reduces cost
- It is a unique 5 step problem solving process

## Problem Solving Toyota Way



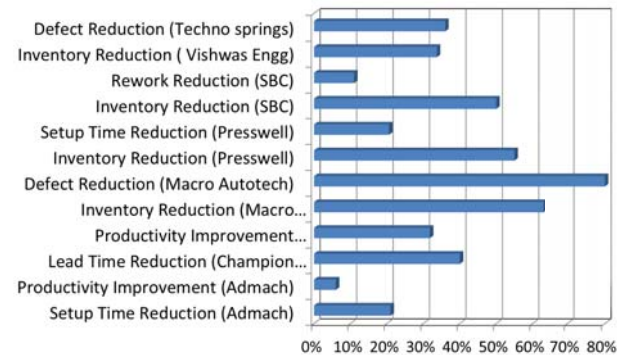
## Tools used for Lean Implementation

- Process Mapping/VSM
- Five S and Visual Management
- Waste Reduction Techniques
- Kaizen
- 7QC Tools
- SMED
- Flow Improvement
- TPM
- Lean Management System



## Results of Lean Implementation

## Results of Lean Implementation (Faridabad Lean Cluster)



## Financial Outcome of Lean Projects

Company	Improvement Theme (Typical Projects)	Results	Est. Revenue + Rs. Lakhs/Yr
1. Admach Industries	Setup Time Reduction	21%	Rs. 9 Lakhd
2. Admach Industries	Productivity Improvement	6%	Rs. 10 Lakhs
3. Champion Components	Lead Time Reduction	40%	Rs. 19.37 Lakhs
4. Gopalsons Steel	Productivity Improvement	31.8%	Rs. 38 Lakhs
5. Macro Autotech	Inventory Reduction	63%	Rs. 4 Lakhs
6. Macro Autotech	Defect Reduction	80%	Rs. 3.17 Lakhs
7. Panchal Manufacng.	OTD Improvement	73.4	Rs. 5.62 Lakhs
8. Panchal Manfrng.	Productivity Improvement	12 Times	Rs. 45.36 Lakhs
9. Presswell Tools	Inventory Reduction	55%	Rs. 1.7 lakhs
10. Presswell Tools	Setup Time Reduction	20.6%	Rs. 17.88 Lakhs
11. Vishwas Engg.	Inventory Reduction	33.7%	Rs. 1.9 Lakhs
12. Techno Spring	Defect Reduction	36%	Rs.1.14 Lakhs

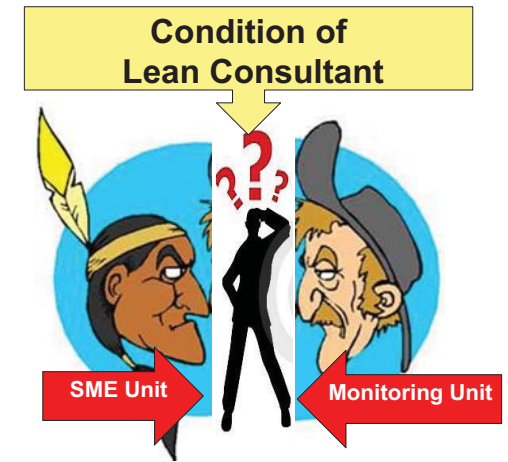
## Intangible Benefits

- Cleaner and better organized workplace
- SMEs have become aware of Waste
- More competent employees. Trained people are getting better jobs
- Some of the CEOs and Managers have started thinking in terms of Lean
- Employees are keen to learn new techniques
- A culture of continuous improvement has started in most of participating SMEs

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## Problems Faced during Lean Implementation



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## Problems faced during Lean Implementation

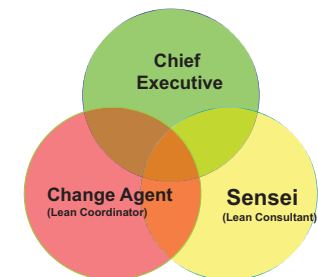
- Lean consultant sandwiched between the Monitoring Agency & SME unit
- Too many units (13) in a cluster with limited time
- Very high expectations with limited time and investment
- Lack of commitment from the SME owners
- Lack of right people to work on project teams
- Team members not attending training programs
- Team members not devoting time on kaizen projects
- No criteria for progress audit by NPC and no provision for timely payment by NPC
- All accountability of the project success forced on Lean Consultant

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## Recommendations for Improvement in LMS

## Success of Lean: 3 Key Players



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## Recommendations for Improvements in Lean Manufacturing Scheme



- Lean Manufacturing Scheme should follow Lean principles.
- Standardized Work is one of the key tools of Lean; every process of scheme right from "Lean Manufacturing Model" its outputs, implementation methodology, audit criteria, performance measurement and all other processes should be standardized
- Criteria for selection of units should be revised to a specific size
- Lean Consultants should be formally trained and duly certified by a national accreditation agency like QCI or any other competent body
- Nationwide Lean Education & training campaign should be launched using e-learning and other modern techniques
- Lean Management subject should be introduced in Engineering, Management, Medical and other professional courses
- Corporates should be encouraged to implement and promote lean in their company and vendor organizations
- Lean awareness campaign should be launched at national level

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## Lean Promotion Initiatives



## Lean Promotion Initiatives

in association with QCI, CISME & Other agencies

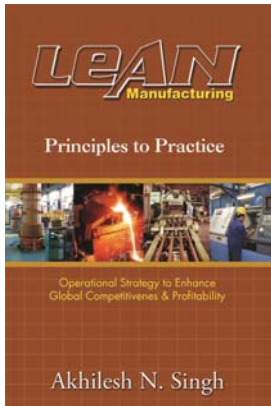


- **Conducting Lean Training & Certification programs through QCI**
- **Conducting country-wide Lean Awareness programs for SMEs through Confederation of Indian Small & Medium Enterprises (CISME)**
- **Started Lean Six Sigma Training Program for MBA Students**
- **Published a book on Lean Manufacturing**
- **Developed Corporate Training CDs on Lean Manufacturing**
- **Developing e-learning program on Lean Management**
- **Providing training & consultancy to many large organizations including BHEL and SMEs**

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## Knowledge sharing th'ru Book: A.N.Singh



### Lean Manufacturing

*Principles to Practice*

#### Contents

- **Part-I: What's Lean?**  
*A brief history of Lean, Lean Manufacturing, Lean Thinking*
- **Part-II: How to Implement Lean?**  
*Lean Transformation, How to implement Lean Manufacturing, Lean implementation in production process, Lean implementation in office process, Lean Leadership and Culture*
- **Part-III: Lean Tools & Techniques**  
*Value Stream Mapping, Kaizen, The 7 QC Tools, Five S, Visual Management, JIT, Kanban, SMED, Standardized Work, Poka Yoke, TPM*

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## What is **LEAN**?



**"Doing the same things, but DIFFERENTLY"**

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## Profile of Lean Consultant

### **Akhilesh N Singh**



- B.Tech from Institute of Technology Banaras Hindu University. Postgraduate Diploma in Business Management & Gembakaizen
- Having over 38 years experience of industry, Teaching and management consulting (SAIL, Jindal Strips Ltd. Asia Pacific Institute of Management & FICCI Quality Forum)
- Undergone training on Lean Manufacturing in Toyota Motor Corporation Japan, Kaizen Institute Japan & Lean Enterprise Academy UK
- Six Sigma Black Belt from ASQ. ISO 9000 Lead Auditor
- Implemented Lean in 1 MSME Cluster and 2 UNIDO clusters
- Provided Lean training/consulting to BHEL, NTPC, Reliance Industries, ISMT, Ispat Industries, Balasore Alloys, UNIDO, Engineering Staff College Bangladesh, Qatar Steel Doha, Essel Propack etc.
- Author of a Book on Lean Manufacturing and 8 Books on Quality Management & Steel technology
- Contact: [ansingh11@gmail.com](mailto:ansingh11@gmail.com), Ph. 09811054753