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

Improve Customer Value  
Improve Process Capability  
Improve Competence of People  
Change the Organization Culture

What is preventing Growth of SME?

Lean approach to make GROWTH

Lean Manufacturing for Growth of SMEs

Lean Manufacturing Competitiveness Scheme - Ministry of MSME

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

Lean Manufacturing

Implementation in Faridabad Auto-Component Cluster

(March 2010-Feb. 2011)
Faridabad Auto Component Cluster
(Units & Their Products)

<table>
<thead>
<tr>
<th>Unit Products</th>
<th>Unit Products</th>
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<tbody>
<tr>
<td>Adricht Industries</td>
<td>Sheet Metal Components</td>
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<tr>
<td>DM Enterprises</td>
<td>Sheet Metal Components</td>
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<tr>
<td>Macro Autotech</td>
<td>Sheet Metal Components</td>
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<td>Panchal Mfrng.</td>
<td>Sheet Metal Components</td>
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<td>Presswell Tools</td>
<td>Sheet Metal Components</td>
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<td>Shri Bhikshu Comp.</td>
<td>Sheet Metal Components</td>
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<td>Vishwas Engg.</td>
<td>Sheet Metal Components</td>
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<td>Champion Comp.</td>
<td>Fabricated Items</td>
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<tr>
<td>Kameel Industries</td>
<td>Fabricated Items</td>
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<td>Gopal Sons</td>
<td>Machined Components</td>
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<td>Shyam Ispat</td>
<td>Castings</td>
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<tr>
<td>Avon Tube Tech</td>
<td>Steel Tubes</td>
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<td>Techno Springs</td>
<td>Steel Springs</td>
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</table>
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!

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

Steps to eliminate Waste

1. Detection
2. Elimination
3. Prevention

Lean Transformation Strategy

- Profitable Growth of the Organization
- Enhanced Customer Value (QCD)
- PEOPLE: Competency Development
- PROCESS: Value Stream Improvement
- WORKPLACE: 5S Implementation
- EQUIPMENT: Health
- MANAGEMENT: Lean Management System
- Lean Transformation
Lean Implementation Framework

1. COMPETENCY Development
2. VALUE STREAM Improvement
3. WORKPLACE Improvement
4. EQUIPMENT Availability Improvement
5. Lean MANAGEMENT System Development

- Education & Training (Lean Tools & Techniques)
- Kaizen Projects (Waste Elimination)
- 5S & Visual Management (Well-organized workplace)
- TPM (Preventive Maintenance)
- Lean Management System (Continuation of Lean)

Lean Implementation Schedule
(March 2010-February 2011)

<table>
<thead>
<tr>
<th>#</th>
<th>Consulting Projects</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>V</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Lean Implementation Roadmap</td>
<td></td>
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<tr>
<td>2</td>
<td>Lean Education &amp; Training</td>
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<tr>
<td>3</td>
<td>5S &amp; Visual Management</td>
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<tr>
<td>4</td>
<td>Kaizen Project-1</td>
<td></td>
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<tr>
<td>5</td>
<td>Kaizen Project-2</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>6</td>
<td>TPM Project</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>7</td>
<td>Lean Management System</td>
<td></td>
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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

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

(Faridabad Lean Cluster)

<table>
<thead>
<tr>
<th>Company</th>
<th>Improvement Theme (Typical Projects)</th>
<th>Results</th>
<th>Est. Revenue + Rs. Lakhs/Yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Admach Industries</td>
<td>Setup Time Reduction</td>
<td>21%</td>
<td>9.9 Lakhs</td>
</tr>
<tr>
<td>2. Admach Industries</td>
<td>Productivity Improvement</td>
<td>6%</td>
<td>10.5 Lakhs</td>
</tr>
<tr>
<td>3. Champion Components</td>
<td>Lead Time Reduction</td>
<td>40%</td>
<td>19.37 Lakhs</td>
</tr>
<tr>
<td>4. Gopalsons Steel</td>
<td>Productivity Improvement</td>
<td>31.8%</td>
<td>38.04 Lakhs</td>
</tr>
<tr>
<td>5. Macro Autotech</td>
<td>Inventory Reduction</td>
<td>63%</td>
<td>4.5 Lakhs</td>
</tr>
<tr>
<td>6. Macro Autotech</td>
<td>Defect Reduction</td>
<td>80%</td>
<td>3.17 Lakhs</td>
</tr>
<tr>
<td>7. Panchal Manfrng.</td>
<td>OTD Improvement</td>
<td>73.4%</td>
<td>5.62 Lakhs</td>
</tr>
<tr>
<td>8. Panchal Manfrng.</td>
<td>Productivity Improvement</td>
<td>12 Times</td>
<td>45.36 Lakhs</td>
</tr>
<tr>
<td>9. Presswell Tools</td>
<td>Inventory Reduction</td>
<td>55%</td>
<td>1.7 Lakhs</td>
</tr>
<tr>
<td>10. Presswell Tools</td>
<td>Setup Time Reduction</td>
<td>20.6%</td>
<td>17.88 Lakhs</td>
</tr>
<tr>
<td>11. Vishwas Engg.</td>
<td>Inventory Reduction</td>
<td>33.7%</td>
<td>1.9 Lakhs</td>
</tr>
<tr>
<td>12. Techno Spring</td>
<td>Defect Reduction</td>
<td>36%</td>
<td>1.14 Lakhs</td>
</tr>
</tbody>
</table>
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 stated in most of participating SMEs

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

Success of Lean: 3 Key Players

- Chief Executive
- Change Agent (Lean Coordinator)
- Sensei (Lean Consultant)

Recommendations for Improvement in LMS
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

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

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

For further information Contact: ansingh11@gmail.com

What is LEAN?

WINNERS DON’T DO DIFFERENT THINGS, THEY DO THINGS DIFFERENTLY.”

“Doing the same things, but DIFFERENTLY”

ansingh11@gmail.com  Phone: 09811054753
www.http://ilmonline.in
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, Ph. 09811054753.