



Implementation of Lean Manufacturing Competitiveness Scheme (LMCS)

(Up-scaled: Revised 2013)





LMCS- Upscaled: Revised 2013

PROGRESS MADE TILL DATE

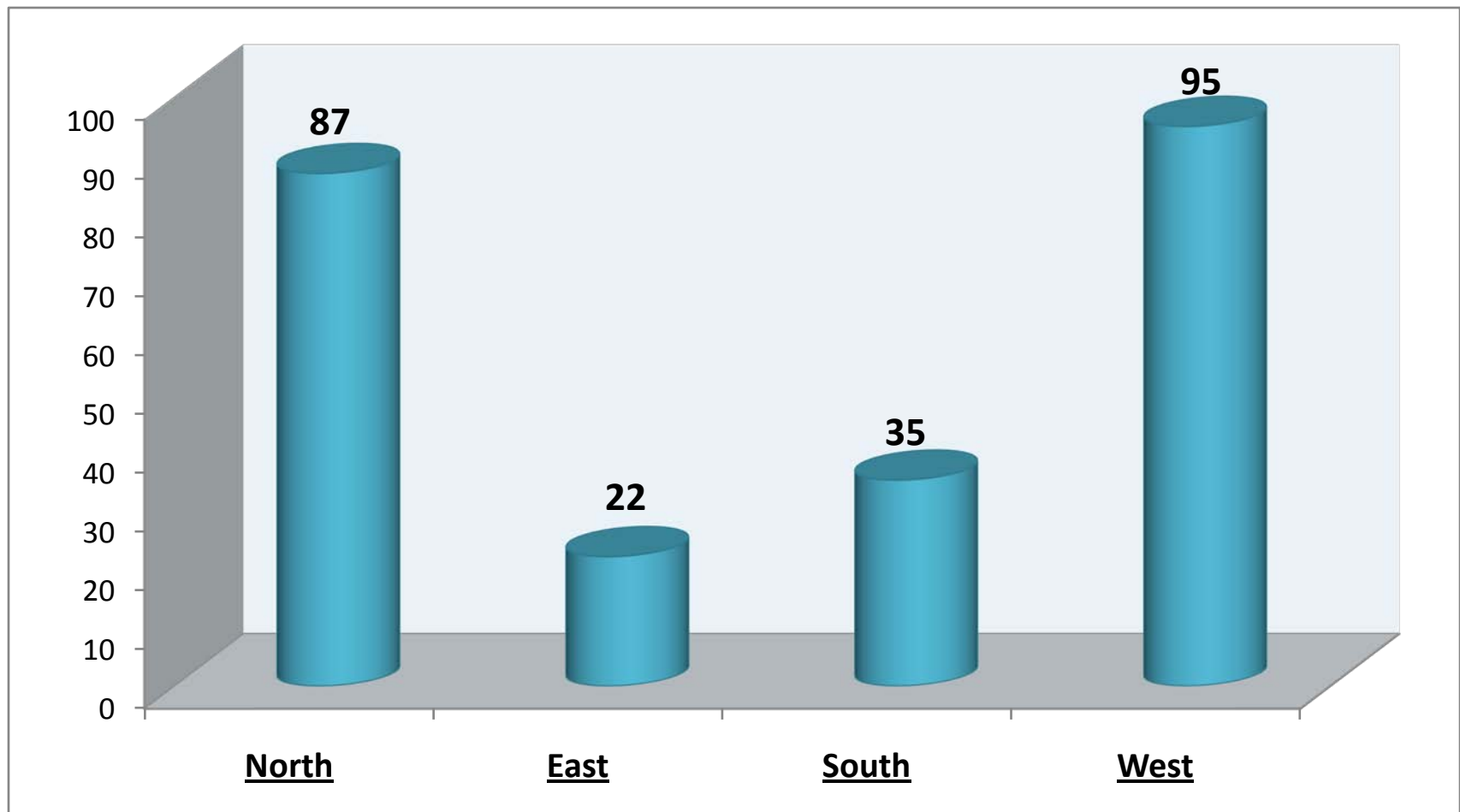


Physical Progress of LMCS

Awareness Progs. Conducted	SPV/DPG Formed	LMC Selections Done	TPAs Signed	Milestones Running				
				1 st (DSR-AP)	2 nd	3 rd	4 th	5 th (Completed)
415	239	191	160	22	15	10	37	76

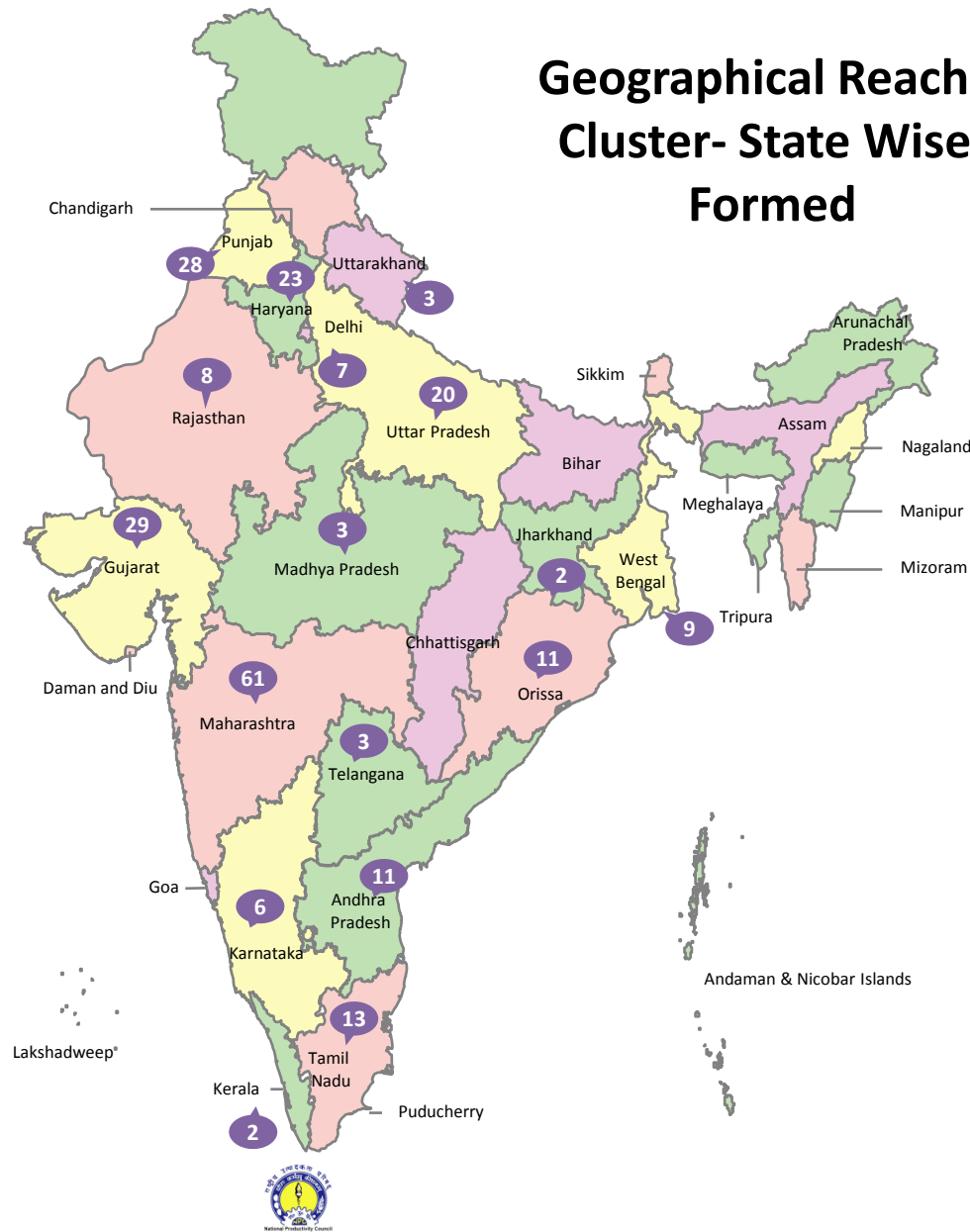


Zone-Wise Distribution of Clusters Formed

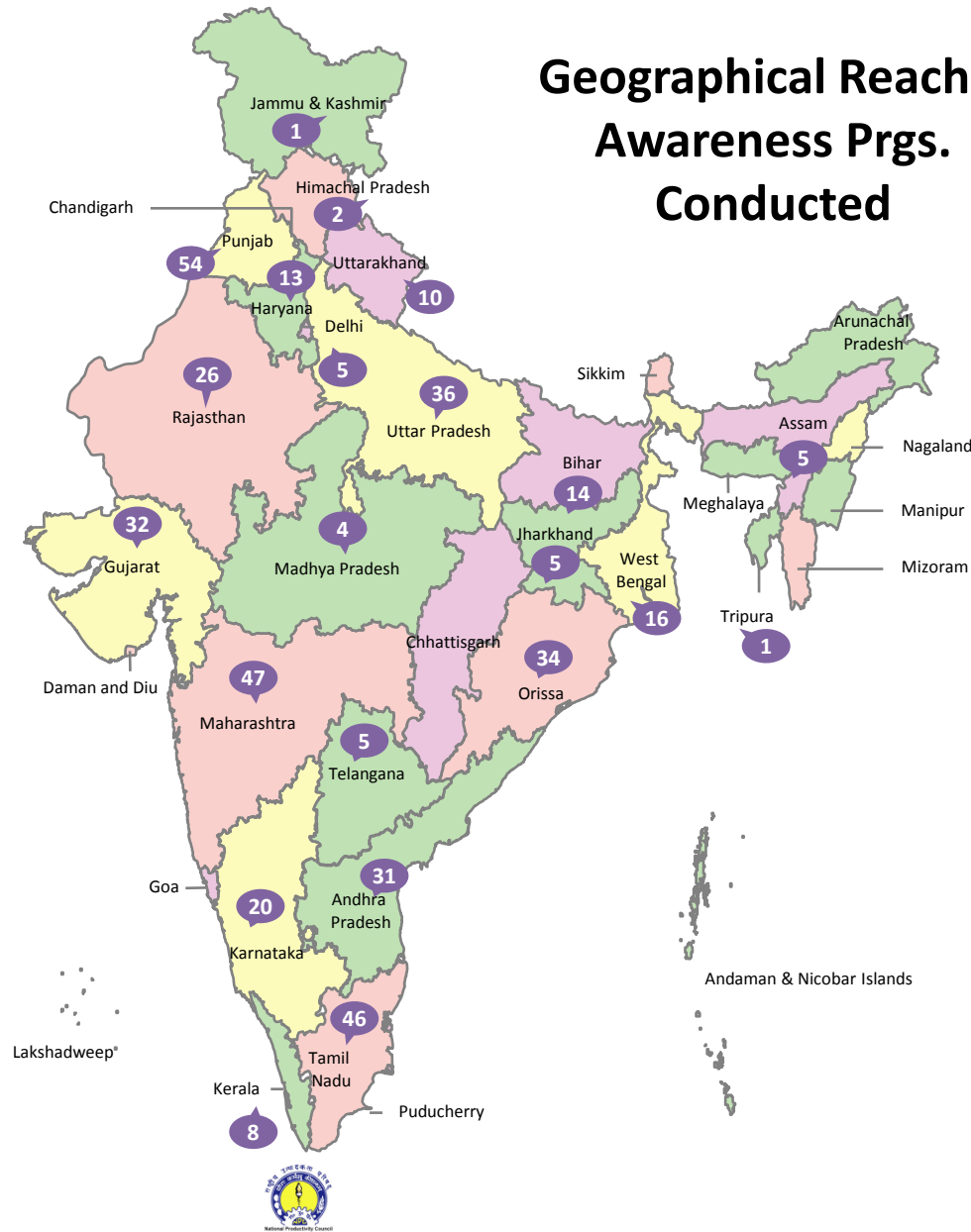




Geographical Reach – Cluster- State Wise- Formed



State	Nos
Andhra Pradesh	11
Gujarat	29
Haryana	23
Jharkhand	2
Karnataka	6
Kerala	2
Madhya Pradesh	3
Maharashtra	61
New Delhi	7
Orissa	11
Punjab	28
Rajasthan	8
Tamil Nadu	13
Telangana	3
Uttar Pradesh	20
Uttarakhand	3
West Bengal	9
Total	239

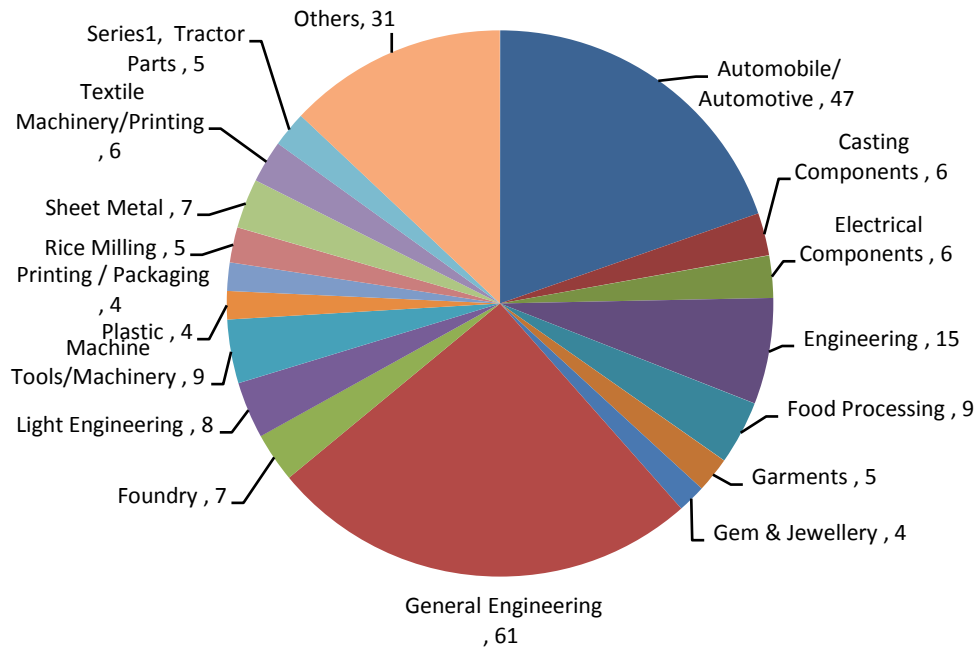


Geographical Reach – Awareness Prgs. Conducted

State	Nos
Andhra Pradesh	31
Assam	5
Bihar	14
Delhi	5
Gujarat	32
Haryana	13
Himachal Pradesh	2
Jammu & Kashmir	1
Jharkhand	5
Karnataka	20
Kerala	8
Madhya Pradesh	4
Maharashtra	47
Orissa	34
Punjab	54
Rajasthan	26
Tamil Nadu	46
Telangana	5
Tripura	1
Uttar Pradesh	36
Uttarakhand	10
West Bengal	16
Total	415



Cluster Category Spread – Sectors



Auto Sector



Sr No	Category	No's	Sr No	Category	No's
1	Automobile/ Automotive	47	22	Metal Handicraft	2
2	Ayurvedic	1	23	Oil Extraction	1
3	Casting Components	6	24	Pipe Fittings	1
4	Chemical	1	25	Plastic	4
5	CNC Machining	1	26	Printing / Packaging	4
6	Diamond Processing	1	27	Readymade Garments	3
7	Electrical Components	6		28	Rice Milling
8	Engineering	15	29	Safety Matches	1
9	Fly Ash Bricks	1	30	Sheet Metal	7
10	Food Processing	9	31	Sport Goods	1
11	Foundry	7	32	Steel Utensils	2
12	Garments	5	33	Textile Machinery/Printing	6
13	Gem & Jewellery	4		34	Toys
14	General Engineering	61	35	Tractor Parts	5
15	Granite Processing	1	36	Truck Body Builders	2
16	Handicraft	3	37	Valves and Cocks	2
17	Heat Treatment	1	38	White Goods	1
18	Heavy Engineering	1	39	Wooden Furniture	1
19	Light Engineering	8	Total – 239 nos.		
20	Leather	1			
21	Machine Tools/Machinery	9			



Monetary and Non-Monetary Benefits

Monetary Benefits:

- The beneficiary MSMEs has witnessed an average increase in productivity level in the range of 12% to 30%.
- Besides, depending upon the type of clusters, the average percentage change in inventory reduction has been reported between 10% to 40%.
- The achievement in respect of reduction in manufacturing lead time is in the range of 15% to 40%.
- Number of Kaizens implemented at cluster level ranges from 7 nos. to 50 nos. leading to savings ranges from Rs. 70,000 to Rs. 3,00,000.
- Mini-clusters have witnessed average monetary benefits/savings in the range of 10 Lakhs to 250 Lakhs
- At unit level, average monetary benefits vary from 3 lakhs to 60 lakhs.

Non-Monetary Benefits:

- Safer workplace management
- Improved quality of products and customer service
- Business opportunities
- High morale of workforce
- Reduction in re-work & defects
- Skill development of the employees
- Reduction in Worker absenteeism
- Effective work allocation and resource utilization



Photographs of Before and After Lean Implementation



Pardi Engineering Cluster

Unit Name: Champaneri Engg. & Fabricators, Killa Pardi, Valsad

Before



In process material placed in haphazard manner, chances of accident increases during transportation and handling

After



Walk ways marked & no material kept on path ways thereby averting any chances of accident



Pardi Engineering Cluster

Unit Name: D G Industries , Killa Pardi, Valsad

Before



Finish product storage area, material can get damaged during storage & handling

After



Deployment of racks thereby reducing chances of damage to the finished product





Pardi Engineering Cluster

Unit Name: Honest Iron & Steel , Killa Pardi, Valsad

Before



Sand storage area in moulding department.

More manpower and efforts required during transportation and handling

After



Sand storage area barricaded by wall.

Less manpower and efforts required during transportation and handling



Satara Engineering Cluster – II

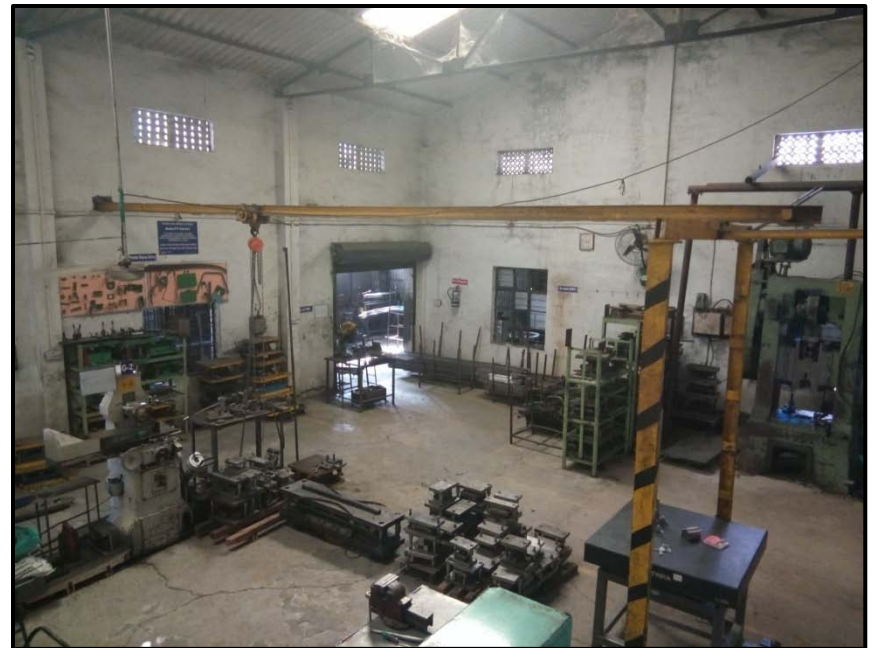
Unit Name: Spark Engineers, Satara

Before



Shop area. It is dumped with unwanted material. There is no specific place for any machine or tools. This is creating congestion in shop.

After



The unwanted material is removed. Layout is more visible with correct places for each machine & other tools.





Satara Engineering Cluster – II

Unit Name: Shree Engineering Works, Satara

Before



Previously there was a room in which there were lot of unwanted material. This was unnecessarily using space.

After



Now this room is removed and all unwanted material is scraped. Because of removing this room there is more visibility in factory now.





Hubli Engineering Lean cluster

Unit Name: Fasteners & Allied Products (P) Ltd., Hubli

Before



Rolls were placed in an unorganized manner

After



Rolls placed properly in a Stack





Umrai Power Loom Cluster, Varanasi

Unit Name: Umrai Fashion Mart

Before



No proper allocation of the material a/c for the showroom
No proper arrangement of the material in the rack

After



Arrangement of the material with the proper data of the material like description about the quantity & size of the material





Umrai Power Loom Cluster, Varanasi

Unit Name: Umrai Fashion Mart

Before



Improper allocation of the material a/c for the showroom
Also, there is no proper arrangement of the materials in the rack

After



Arrangement of the material with the proper data of the material like description about the quantity & size of the material



Financial Progress of LMCS

S. No.	Particulars		Amount (Rs.)
1.	Sanctioned Amount to NMIU by O/o DC-MSME	Sanction 1 Dated 27.02.2014	14382500
		Sanction 2 Dated 20.03.2014	4567500
		Sanction 3 Dated 30.10.2014	100000000
		Sanction 4 Dated 10.08.2016	30000000
		Sanction 5 Dated 14.12.2016	100000000
		Sanction 6 Dated 19.09.2018	92088937
		Sanction 7 Dated 19.09.2018	7911063
	GRAND TOTAL		
2.	Payment made to LMCs by NMIU		229703304.6
3.	Funds Utilized by NMIU		110374000
4.	TOTAL EXPENDITURE TILL DATE		340077304.6
5.	Balance amount with NMIU		8872695.4



THANK YOU

Automotive Radiator Parts & Assembly Lean Manufacturing Cluster, Pune

National Monitoring and Implementing Unit (NMIU) **Lean Manufacturing Consultant (LMC)**



National Productivity Council

Name of Organization: Magnifico training and Consulting Services)

Contact details:

Mobile: 9881069515 / 8329572918

E-mail id: magnificotc@gmail.com

About the Cluster

There are 10 companies in the cluster which includes 2 plastics injection & blow moulding companies, 2 Aluminum casting, 2 Fabrication engineering, 2 press parts, 1 electrical and 1 machining company. These 10 SMEs from radiator sector came together and formed the Automotive Radiator parts and Assembly manufacturing Cluster

Lean Journey

At the beginning of cluster Diagnostic Study roads was done for all units and observed that there were issues of space constraints, high set up time, high inventory and lack of Kaizen culture in units, high break down time etc.. affecting the units productivity, Quality performance and financial results. These all issues were needed to be addressed during different phases. All units head were involved throughout the journey for improving each parameter. In this journey Zone wise implementation of 5S culture, training up to lowest level of shop floor, developing kaizen culture, VSM, SMED, TPM and other tools were used to improve parameters.

Lean tools used

5S culture, Kaizen, VSM, SMED, TPM

Over all benefits of Cluster

The lean program in this cluster has benefited to group companies up to Rs. 1.5 cr. More than 204 technical Kaizens were generated form group from which Rs. 26 lacs savings was generated and by reducing extra inventory and reducing change over time Rs. 35 lac were saved. Organization culture is improved in all companies. Customer satisfaction increased for these companies and increased in business of some companies was seen.



Before



After

Aluminum Casting Unit



Before



After

Powder coating floor improvement

Success Story of one of the units Associated Manufacturing Company

About the unit

This unit supply press parts to Bosch and Tata Toyo and other customer. The unit was started in 1983 and it has grown up to 50 Cr. There are more than 150 employees out of which 20 % are mentally challenged and these people are working on specific operations with full safety.

Lean Journey and concerns

During the Diagnosis study it was observed that company have several issues like high customer complaint, Low productivity, undue material flow and excess inventory etc. The unit was not having Kaizen and Poka yoke culture on shop floor. These issues were affecting the organizational performance like productivity, product quality, customer commitment etc. Also the growth of the organization was not moving ahead.

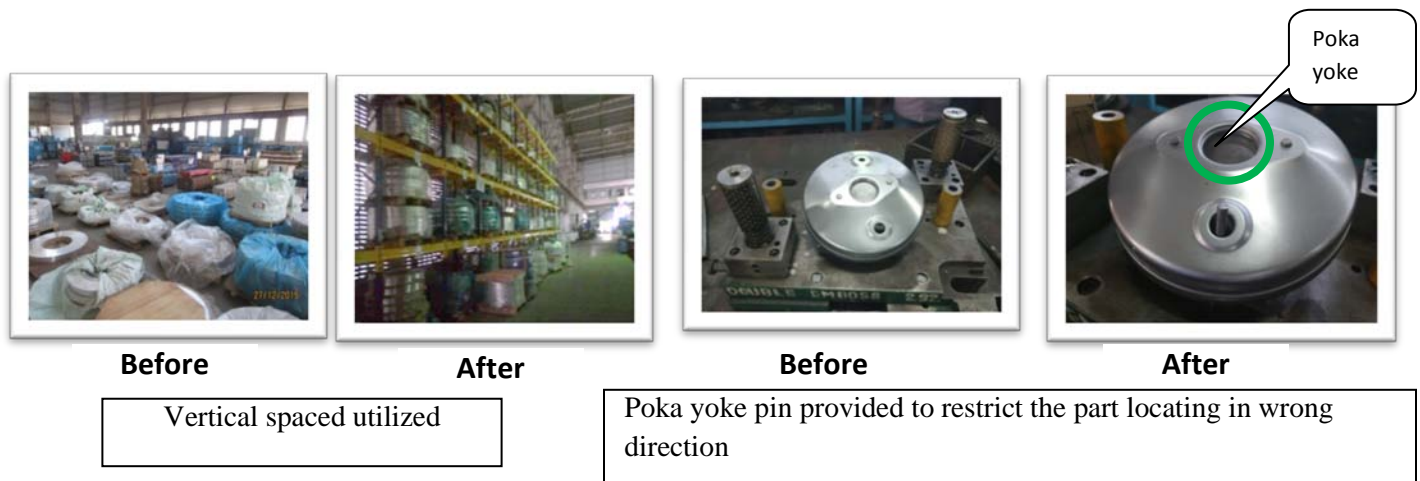
Lean tool used

5s, Kaizen, Poka yoke, SMED, VSM, TPM, etc. tools were used on shop floor. Training was given to staff as well as shop floor people in local language. Several zones were created for 5s activities. Audit methodology was adopted for review purpose.

Root cause analysis for internal and external complaints was done. Lot of Kaizens and poka yoke generated through Gemba walk and implemented. Visual factory was created and employee participation was increased during phase wise activities.

Over all benefits are listed here in table

Sr. No.	Projects	Monetary benefits	Non Monetary benefits
1	5S	Rs. 2,05,820/-	1000 Sq. Ft. space recovered
2	Kaizen	Rs. 2,50,000/-	Moral improved of total employees
3	Quality Improvement	Rs. 300000/-	Customer Rejection ppm Reduced by 90% & In-house ppm reduced by 17%
4	SMED	Rs. 2,59,200/-	OEE & productivity Improved
5	ITR	Rs. 3,23,500/-	Cash flow Improved



Precision Parts Manufacturers Association, Coimbatore, Tamilnadu

National Monitoring and Implementing Unit (NMIU)



National Productivity Council

Lean Manufacturing Consultant (LMC)

Name of Organization: M/s Shrishti Consultants

Mobile: 9445070511

E-mail id: rd@shrishtibiz.com

About the cluster

Precision Parts Manufacturers Association (PPMA), Coimbatore is a cluster of eight companies which were formed with the support of M/s. Janatics India Pvt. Ltd. The units were mainly manufacturer of Precision Engineering components like Pneumatic components, automotive components, Aluminium Die Castings, Rubber seals etc.

Lean Manufacturing has made aware of the powerful concept of increasing profitability through reduction in Muda, Muri and Mura in work processes by applying Principles of Lean Manufacturing in reducing wastage in Transportation, Inventory, Motion, Waiting, Over Production, Over Processing and Defects. It also helped employee involvement and interaction among them in improvements.

Lean Journey

It was observed that the cluster was facing problems like, high rejection, high work in progress, workplace was also not in proper condition and the unit was lagging kaizen Culture. Lean showed us the importance of the management Information Systems, through which we could decide action plans for further improvements. Sharing knowledge among the cluster units helped the cluster to get higher benefits and Horizontal deployment among the cluster units.

Lean implementation helped in waste identification and reduction in various areas. It also gave the leverage of horizontal deployment of many good ideas from the project.

Lean Tools Used

Overall Equipment Effectiveness, 5S Improvement, Value Stream Mapping (VSM), Inventory Reduction in WIP, Productivity Improvement, Rejection Analysis (7 Qc Tools), Single Minute Exchange of Dies (SMED), KAIZEN, On Time Delivery (OTD), Standard Operating Procedure (SOP)

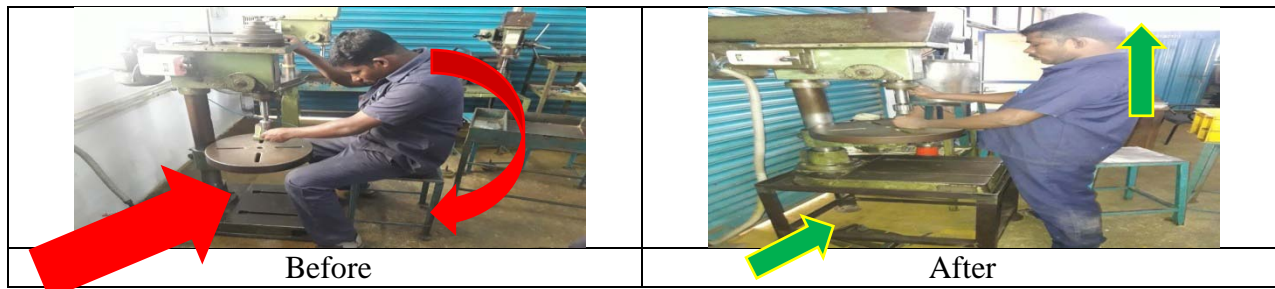
Overall benefits at cluster level

Monetary Savings:

- | | | |
|---|---|-----------------|
| • Total Cost saving through Scheme | : | Rs. 452.3 Lakhs |
| • Average Cost Saving per unit through scheme | : | Rs. 56.54 Lakhs |

Non-Monetary Savings:

- Employee Motivation
- Space Utilization Improved
- Increase in Good components
- Decrease in over processing
- Customer compliant reduction
- Effective utilization of all resources



Success Story of one of units M/s. Skyfast

About the unit

The unit is a leading Supplier and manufacturer of Aluminium part of Pneumatic lubricator, Pneumatic Filter, Pneumatic Directional Control Valve, Pneumatic cylinder which is an important component in Pneumatic Industry. The unit was established in 2012 and has grown over last few years with annual turnover of approx. Rs.9 crore. The unit has a workforce of 300 employees and is a vendor of M/s. Janatics India Private Limited.

Lean Journey

During Diagnostic survey it was observed that the company was facing acute problem of high WIP, high rejection, workplace was also not in proper condition and the unit was lagging kaizen Culture.

Lean implementation helped in waste identification and reduction in various areas. It also gave the leverage of horizontal deployment of many good ideas from the project.

Lean showed the importance of Management information systems, through which it was helpful to decide action plans for improvements. This led to increase in productivity, setup time reduction and Lead time reduction.

Lean Tools Used

Rejection Analysis, Productivity Improvement, KAIZEN, 5S, Inventory Reduction

Various formats were designed for data collection to record the occurrence of rework and WIP which was analysed through Brainstorming to arrive at the root causes of Rejection and WIP. The root causes Identified were further studied in detail to develop corrective and preventive measures for the same. Several Kaizens were developed during the process and were implemented. As the housekeeping of the shop floor was not proper, a concept of 5S and Visual Management was used to improve the aesthetics of the shop floor. At the outset, the entire unit was divided into various zones for 5S implementation and for each zone various teams, comprising zone leader and zone members were formed. Training was given to staff and workmen on the concepts of 5S. Unwanted items and scrap were removed from shop floor and proper system of storage of required tools, equipment's, dies etc. was developed. Gangway marking was done on the entire shop floor, Display Boards were placed on machines, Posters on 5S and Safety were also placed on the walls of shop floor and various strategic locations. The employees welcomed the initiative as they could appreciate the benefits accrued in terms of lower search time of tools and materials, cleanliness on floor, greater safety etc. 5S reward scheme was designed and implemented in the unit and regular 5S audit was scheduled for a period of a week. Each zone was audited and assessed for the sustainability of good housekeeping. The zone which scored the maximum was awarded with an appreciation in Monthly Meeting among the Employees. Periodical Audit formats were developed and internal audits conducted for monitoring the status and progress of 5S activities.

Overall Benefits at unit level

- Reduction in Rejection 50%
- Productivity Improvement 50%
- Capacity Increase 25%
- 5S Score improvement from 4% to 80% on 100% scale

- Space Savings 10% of the Factory
- WIP Reduction in Inventory 50%
- KAIZEN Implementation 120 Nos.
- Annual Savings Rs. 187 Lakh

Before

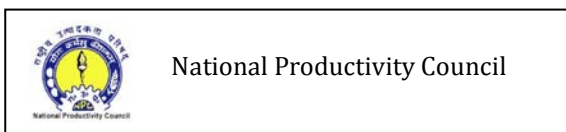


After



Automotive Lean Cluster, Aurangabad, Maharashtra

National Monitoring and Implementing Unit (NMIU)



Lean Manufacturing Consultant (LMC)

Name of the Organization: M/s Cygnus Design Solutions.

Contact details:

Mobile: 8459583932/ 9890600655

E-mail id: spgsjoshi@yahoo.com;

pande_parag@rediffmail.com

About the cluster

NPC and MSME (DI), Mumbai arranged awareness programme at Aurangabad for Micro and Small Enterprises and briefed them about Lean Manufacturing Competitiveness Scheme: Upscaled – Revised 2013. After attending this programme, a group of small scale units with similar processes formed Automotive Lean Cluster under SPV - Marathwada Association of Small Scale Industries & Agriculture (MASSIA), Aurangabad. The cluster comprised of ten units engaged in Press and fabrication, Turned Automotive components and Electroplating. The lean cluster was unique in nature due to its special processes and varied customer base. The Proprietors and Directors of these units participated in the cluster formation because of the benefits of achieving business excellence, process excellence, identification and elimination of wastes and workplace upgradation through Lean practices.

Lean Journey

The DSR Study was done at all units of the automotive lean cluster. The as is status was studied & the projects to be undertaken phase wise & unit wise were decided. It was observed that the Shop floor condition was not good the 5S status was poor. The employees were not aware of wastes (3M) in the system, Breakdowns were frequent, rejections were high, set up time was very high. Inventory was high, Visual controls were absent and these were resulting in financial losses to company. The Common Training programmes were held to explain various lean tools like 5S, kaizen, SMED, Pokayoke, OEE, 7QC tools, ITR, JH etc. The concepts were explained in detail while shop floor training. The Projects were executed by handholding & guidance to the team members. The periodic Review of the progress of projects was conducted through MRM's & phase wise audits by NPC/MSME. The personnel were trained & motivated to sustain lean practices for Continuous improvement of the units.

Lean tools used

5S, kaizen, SMED, Pokayoke, OEE, 7QC tools, ITR, JH etc.

Overall benefits at Cluster level:

Monetary: Through 5-S Projects Rs 23,23,000 per Annum. By Elimination Of 3 M's (Through Kaizens & pokayoke) Rs.30,71,780 Per Annum. Total: Rs 53,94,780 Per Annum.

Non Monetary: In all the units of Automotive Lean cluster, the lean concept is understood from Top management to the operator level through various training programmes and active participation of all in lean projects. That has made them proactive towards improvement & growth of the company & in

striving to achieve Business Excellence. Some units were able to get New customers because of lean. Certain Training Sessions like Time Management has helped them to manage their life in a better way

Lean Roadmap Training



Time Management Training



Success Story of one of the units Tirupati Pressco Unit-1

About the unit

Tirupati Pressco was established in the year 2000. It is an “ISO 9001:2015” Company engaged in manufacturing of pressed parts, welded components and auto accessories for various ancillaries linked with Bajaj Auto Ltd, Waluj & Chakan. The company has a turnover of @ 12.5 Crores. **Tirupati Pressco** is engaged in making components mainly for chassis and welded Assemblies.

Lean Journey

During DSR stage it was observed that the Shop floor condition was not good the 5S status was poor. The employees were not aware of wastes (3M) in the system, Breakdowns were frequent, rejections were huge, set up time very high. Inventory was high, Visual controls were absent etc. Resulting in financial losses to company. The safety & work environment was also not good. The work started from changing the mindset. The importance of 5S & other lean tools was explained. Employees at all level started to take part in improvement projects.. SOP were made & displayed regular 5s Audits Started. Shadow boards made for quick die change. Breakdowns brought down to minimum by JH PM Activities. The rejections were controlled & the inventory also kept to optimum level. When the benefits of the projects started to appear the necessity to sustain lean practices became obvious to everyone. In this way the lean journey is still going on.

Lean Tools used

5s, SMED, Kaizen & PokaYoke, JH & Model Machine, OEE, ITR, Visual Control

- 5s score improved from 8% to 85%, Neat workplace, More space
- 36% Reduction in Die change time
- Improved productivity, safety & Reduction in Rejection.
- Reduction in Machine breakdowns, Improved productivity
- 25% increase in OEE
- ITR Increased from 15 to 18
- 285 SOP Developed. Resulting in ease & accuracy of operations

Overall benefits at unit level:

Monetary: Through 5-S Projects Rs. 2,00,000 per Annum by Elimination Of **3 M's** (Through Kaizens & pokayoke) Rs.10,23, 600 Per Annum. **Total:** Rs 12, 23,600 per Annum.

Non Monetary: The lean concept is understood from Top management to the operator level through various training programmes and active participation of all in lean projects. That has made them proactive towards improvement & growth of the company & in striving to achieve Business Excellence. Certain Training Sessions like Time Management has helped them to manage their life in a better way.



“During This lean journey the unit has learnt to use different lean tools to achieve business excellence, process excellence, identification and elimination of wastes and workplace up-gradation. By sustaining these practices the unit is marching on the path of success & profitability”