



# Relaxo Footwears Limited

## Work Study Report on Production Norms

at RFL – Unit V, VIIA & B, IV, VII A & B with Existing & proposed work methods & practices,  
at RFL Unit III – Capacity Estimation, Norms with Existing & Proposed work method.

**Project Started on 1<sup>st</sup> Oct 2012**

RFL IESTUDY-01

Aug 10, 2012



## Vrunda Consultancy Services

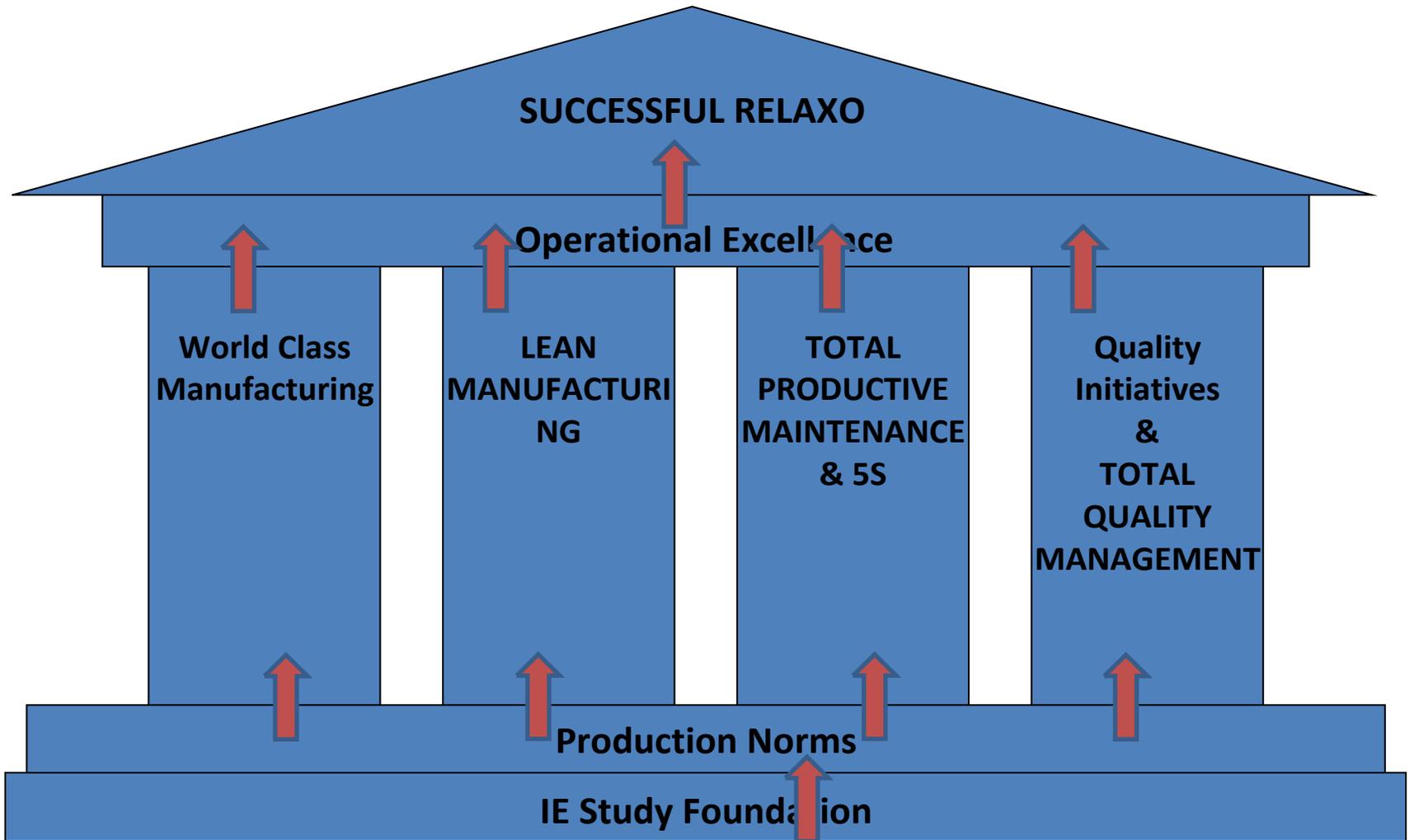
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# Industrial Engineering Studies Pave the Way of Success of Relaxo



# OBJECTIVES

Terms of reference

## IE STUDY

- Establish Production & Deployment Norms for Running Products

- Suggest Improvements along with automation

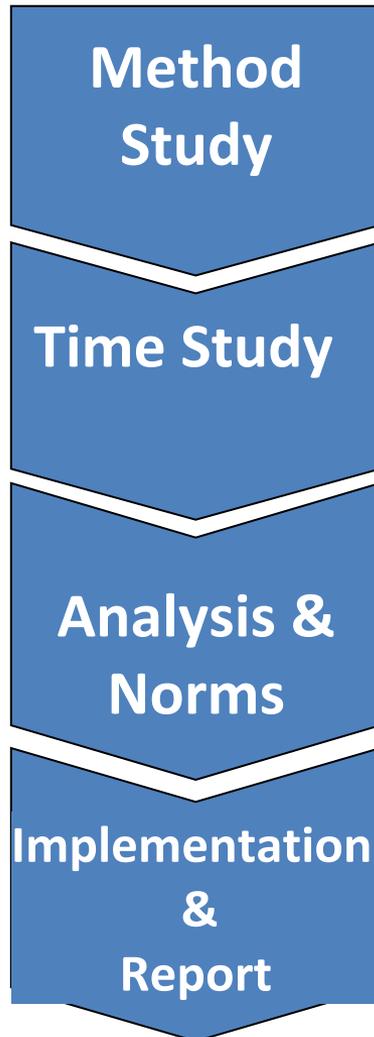
- Implement the Norms for Sample Line to Validate the Study

- Assist in Comparative development of Norms for other products

# VCS's REAMS Methodology

## Tools & Techniques Used

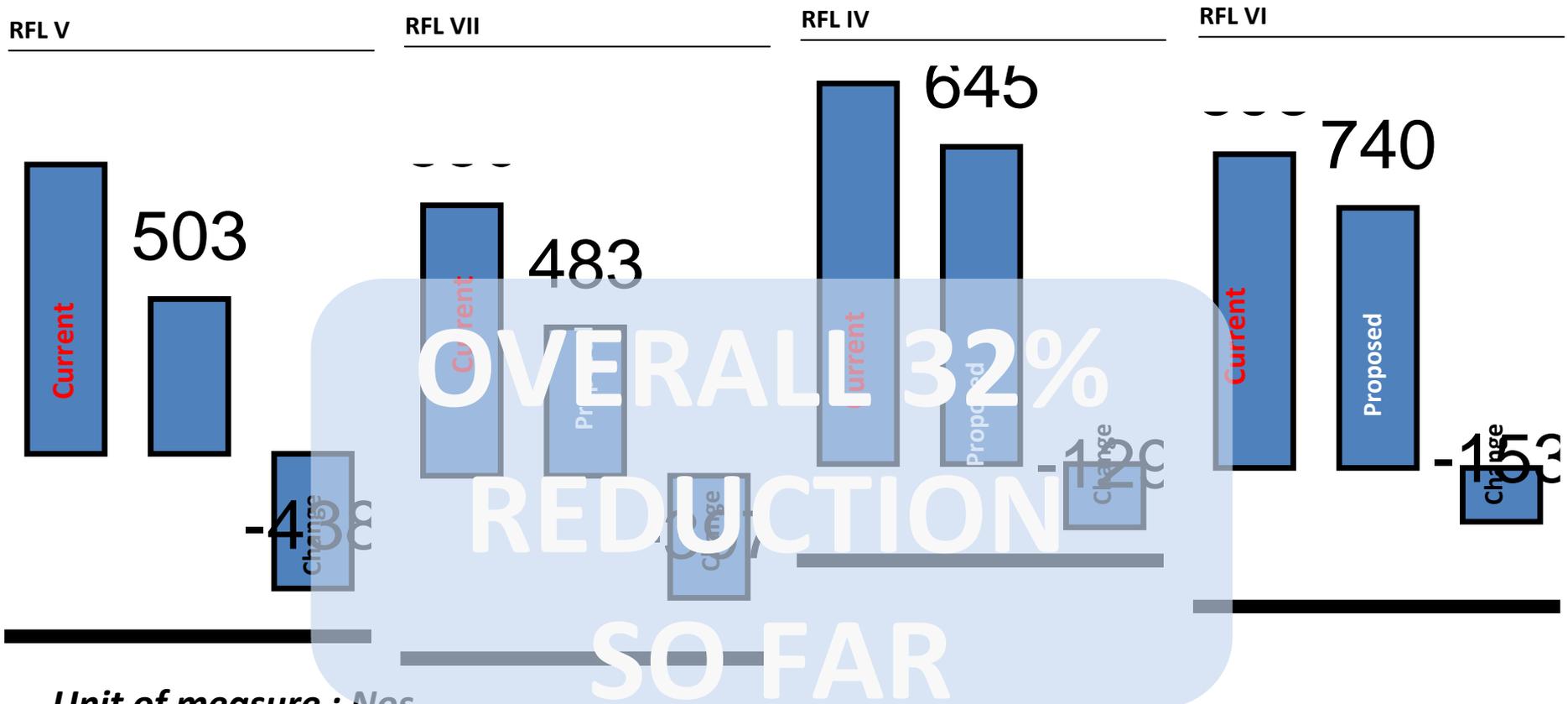
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- Product – Process Matrix
- Flow Diagram
- Flow Process Chart
- Video Recording & Analysis
- Stop Watch Time Study
- Work Sampling
- MOST & Pre-determined Time Standards
- Activity Standards Development
- Line Balancing, Correlation & Regression
- Flow Analysis & Recommendations
- Production & Deployment Norms
- Sample Implementation of Norms
- Validation of Norms
- Comparative Norms Development & Report Submission

# Estimated Results of IE Study

## Unit RFL IV, V, VI, VII Deployment Comparison



*Unit of measure : Nos.*

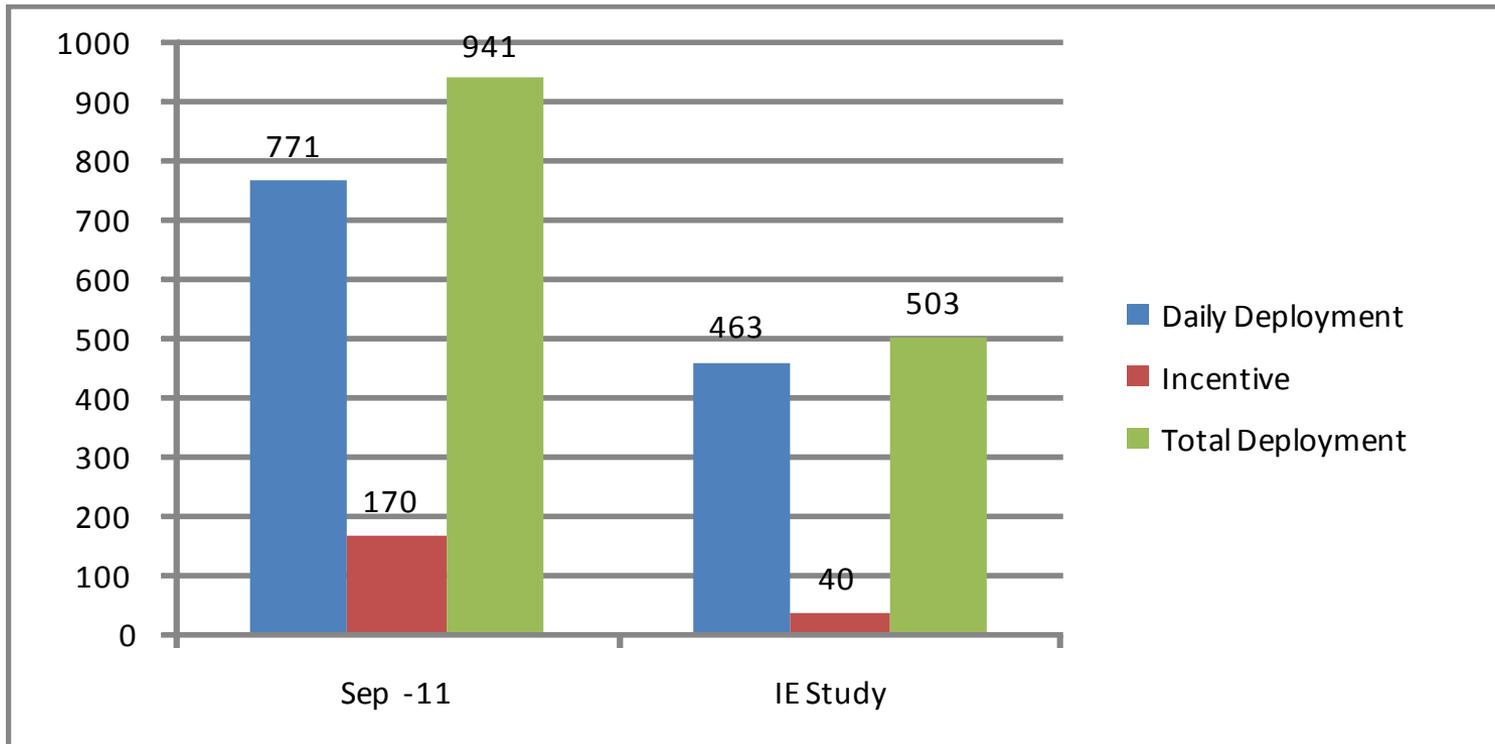
*Deployment per day, Includes Overtime(Incentive)*

*12 Hr shift converted to 8 Hrs shift, OT / Incentive added to total Deployment*

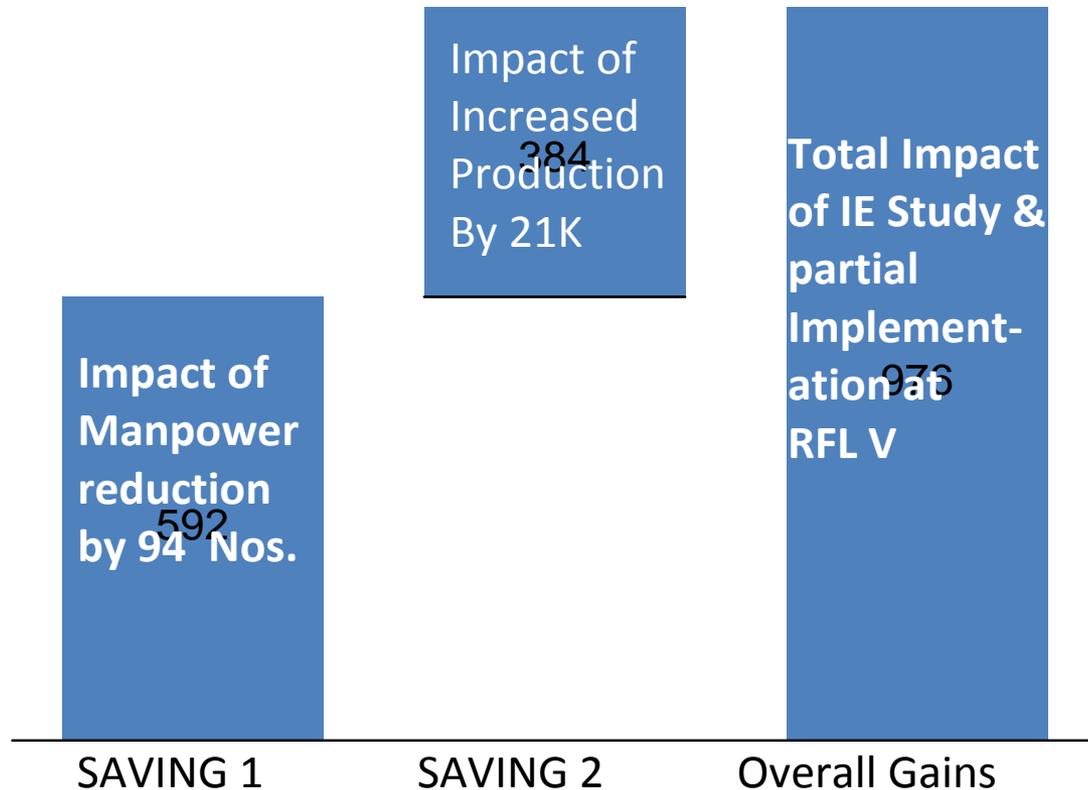
*Deployment excludes Service functions deployment*

# Estimated Results of IE Study

## Unit RFL V Deployment Comparison



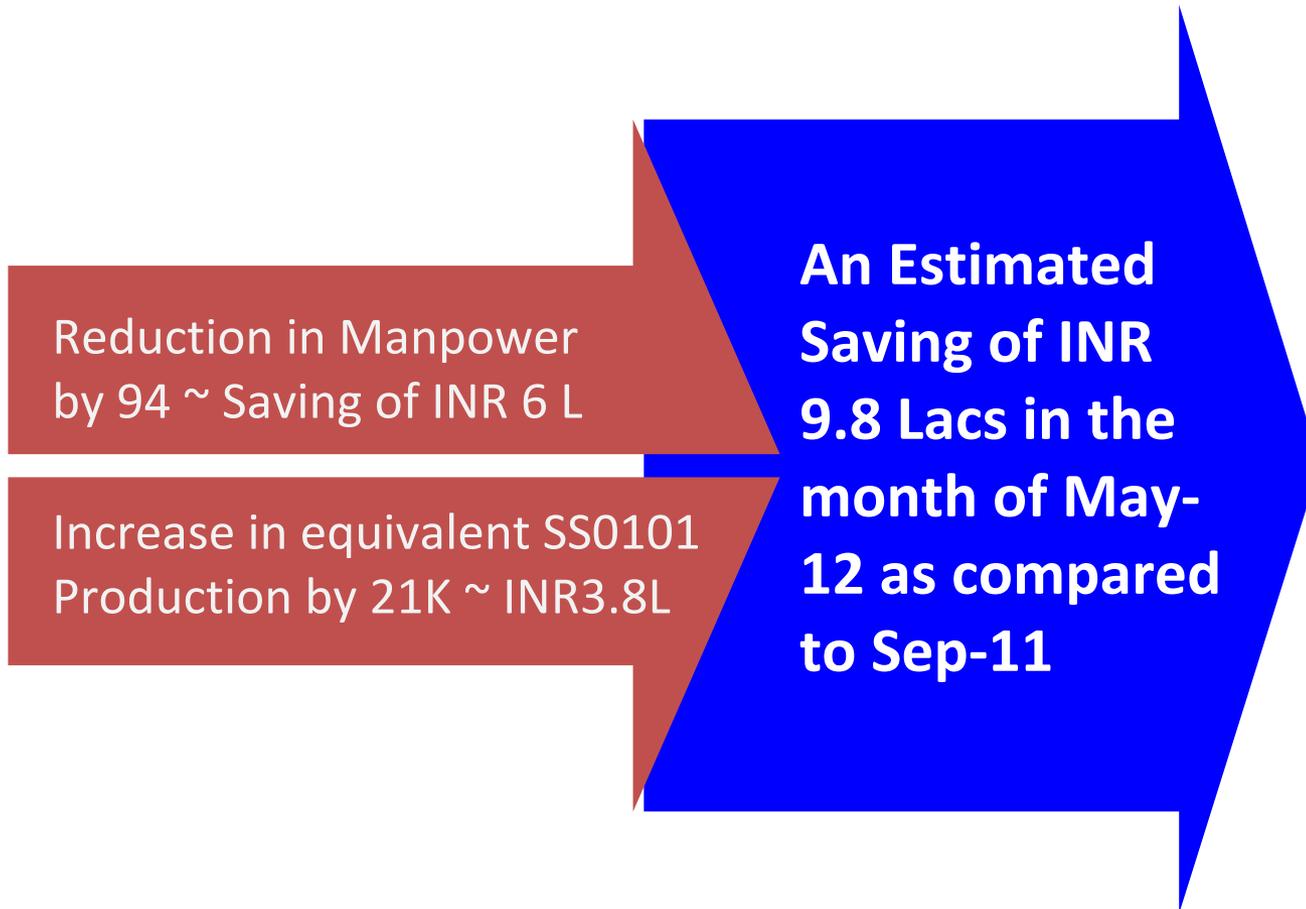
# Actual Performance of RFL V in May-12 Compared with Sep-11



Note : Values in RS ,000/-.

Data Source – MAPA, Production Reports & HR Reports  
(Detailed Report – RFL Comparison Sep-11 May-12.PPTX )

# The IMPACT in May-12 V/S Sep-11



# The OVERALL IMPACT at RFL V in May-12

## Compared to Sep-11

MAY-12

Equivalent Production

184157

Deployment

677

Incentive Man Months 180

AVG CTC 8744

SEP-11

Equivalent Production

162766

Deployment

771

Incentive Man Months 170

AVG CTC 7314

NET SAVINGS of INR 3.1L

Gains

Equivalent Production

21390

Deployment Reduction

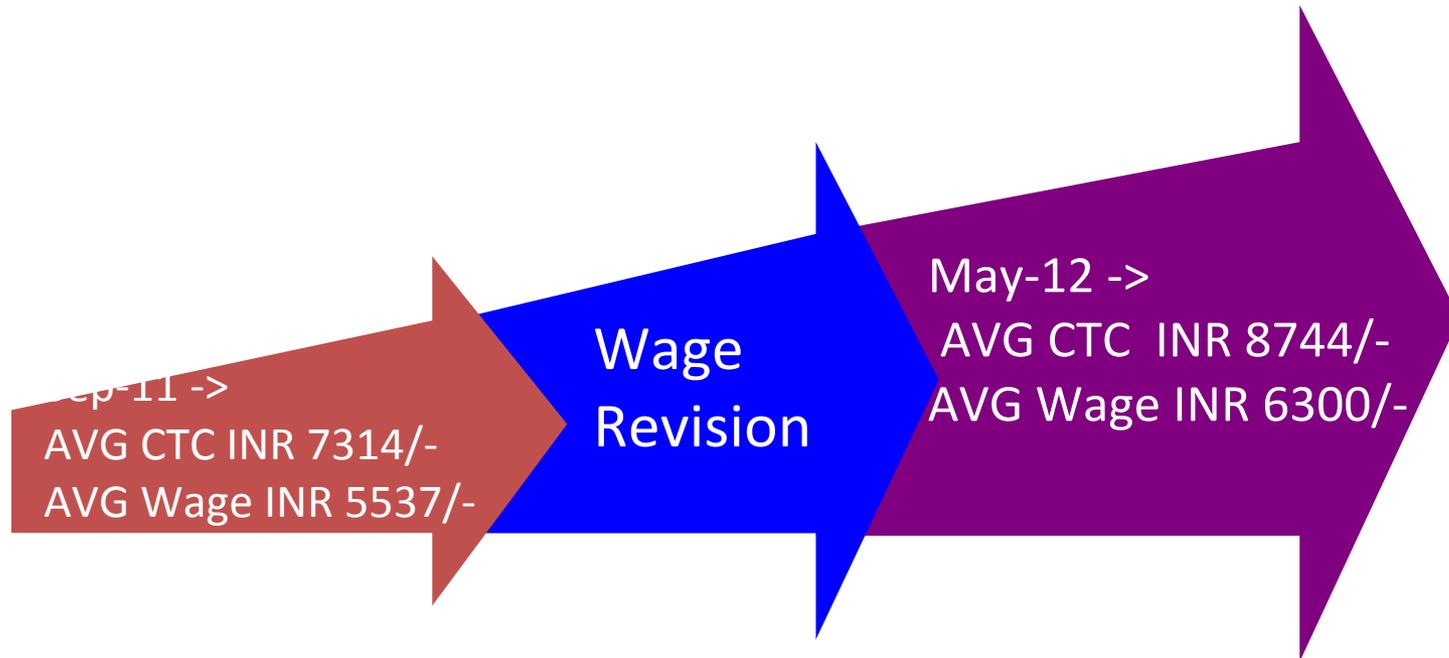
94+61\*

Incentive Man Months -10

\*- If were to produce Sep-11 equivalent Production



# The LEVELLER



# Outcome – Result of Study – Shoe Division (RFL V&VII)

SANDAL LINES	Earlier	Proposed	Change
– Productivity	<b>Sep/Nov-11</b>		
• Stitching (Pairs/Man-Hour)	1.36	2.23	64 %
• Assembly (Pairs/Man-Hour)	2.73	4.11	51 %
– Throughput	60	90	50 %
• Stitching (Pairs/Hour)	100	140	17 %
• Assembly (Pairs/Hour)			
– Line Balance	48	84	+36
• Stitching Line - % Balance	53	91	+38
• Assembly Line - % Balance			
– Other Parameters	---	---	25 %
• *Area Saved - %	> 700	< 50	< 50
• *Inventory - Nos. of Pairs	150	20	20
• *Change over time- Minutes			

**Note : \* - For Stitching Line Only**

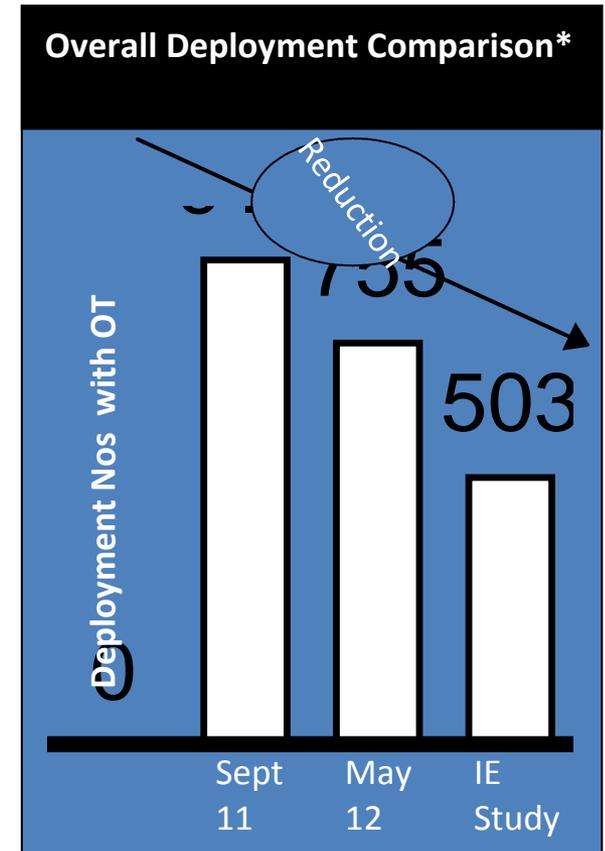
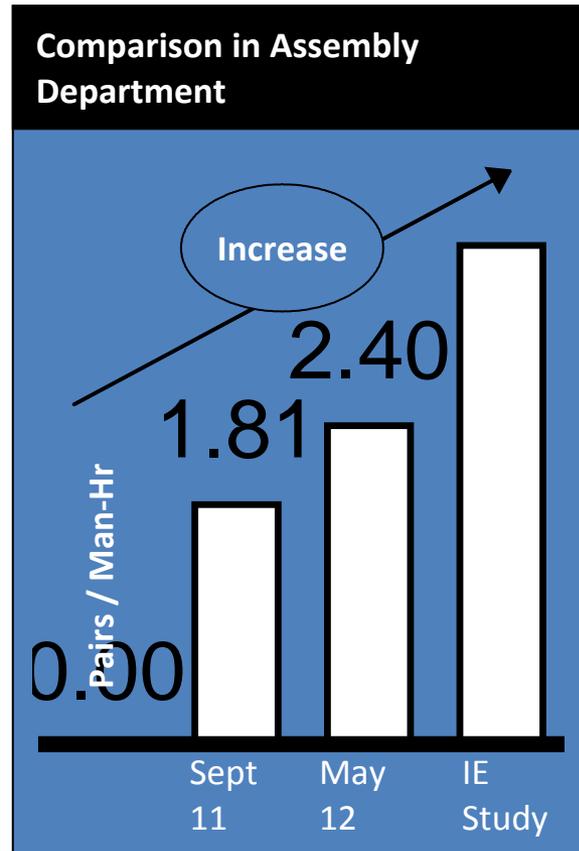
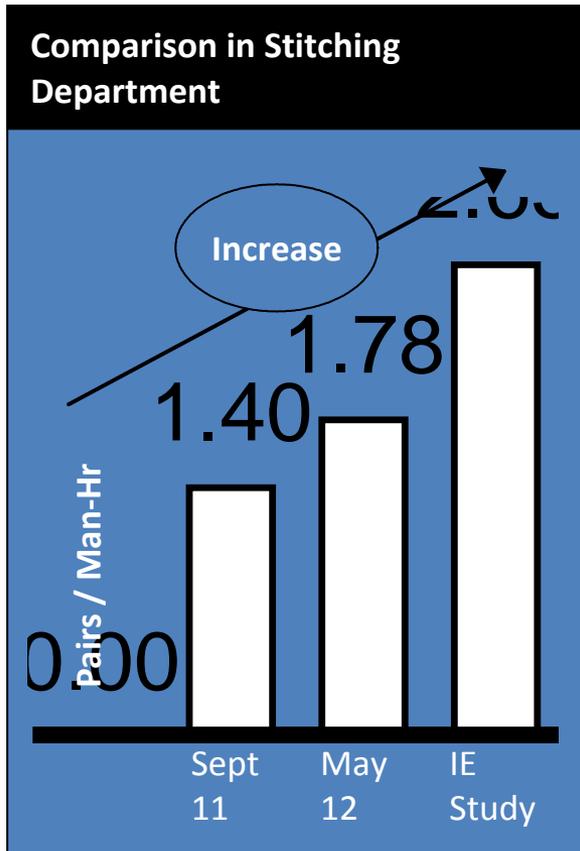


# Outcome – Result of Study – Shoe Division (RFL V&VII)

SHOE LINES	Earlier	Proposed	Change
– Productivity	<b>Sep/Nov-11</b>		
• Stitching (Pairs/Man-Hour)	0.75	1.09	45 %
• Assembly (Pairs/Man-Hour)	1.91	3.16	65 %
– Throughput	56	55	(2) %
• Stitching (Pairs/Hour)	106	120	13 %
• Assembly (Pairs/Hour)			
– Line Balance	58	88	30
• Stitching Line - % Balance	61	90	29
• Assembly Line - % Balance			
– Other Parameters	---	---	25 %
• *Area Saved - %	> 500	< 50	< 50
• *Inventory - Nos. of Pairs	150	20	20
• *Change over time- Minutes			
<b>Note : * - For Stitching Line Only</b>			



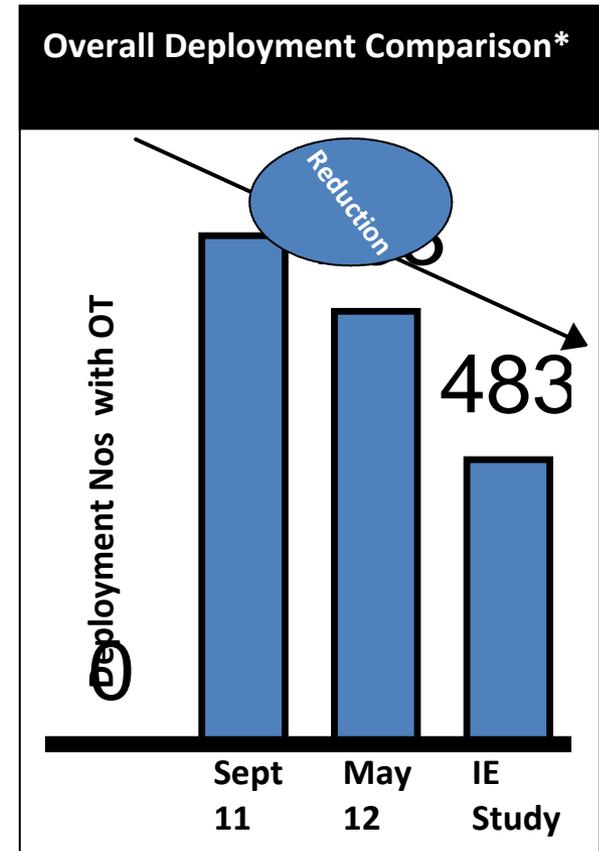
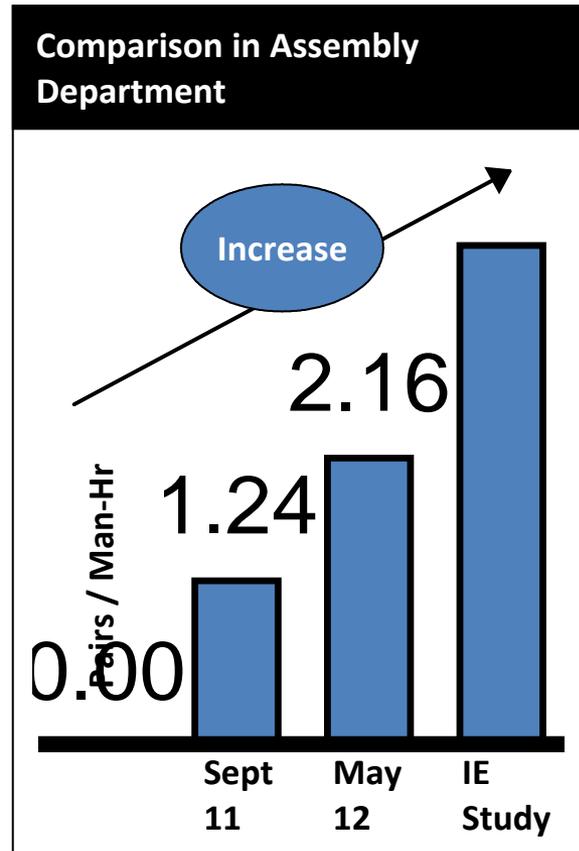
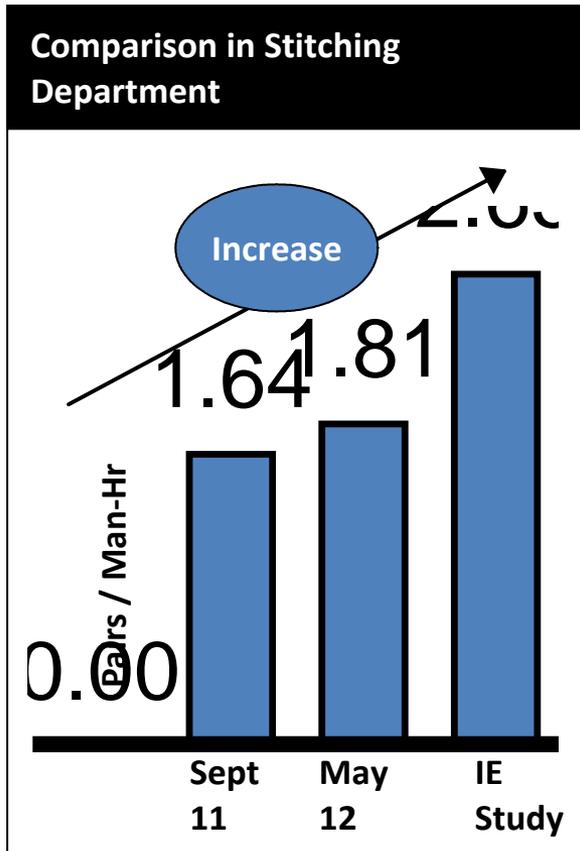
# Implementation Results Unit RFL V



**Note : \* - deployment for Production Equivalent of May-12 Production, Includes Overtime**

Data after converting to SS0101 Equivalent

# Implementation Results Unit RFL VII B

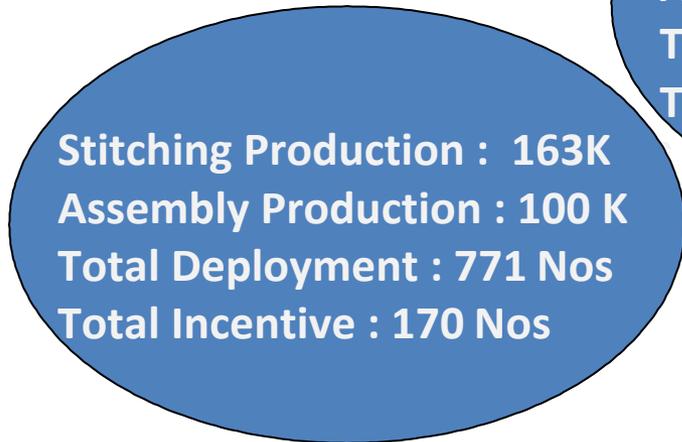


Note : \* - deployment for Production Equivalent of May-12 Production, Only for Stitching & Assembly, Includes Overtime  
Data after converting to SS0101 Equivalent

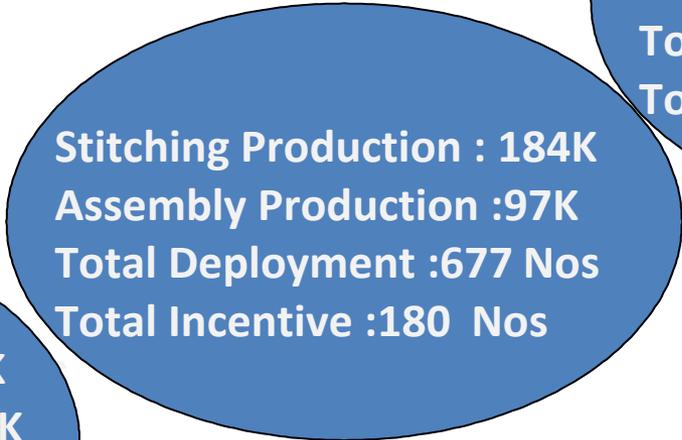


# 3-STEPS

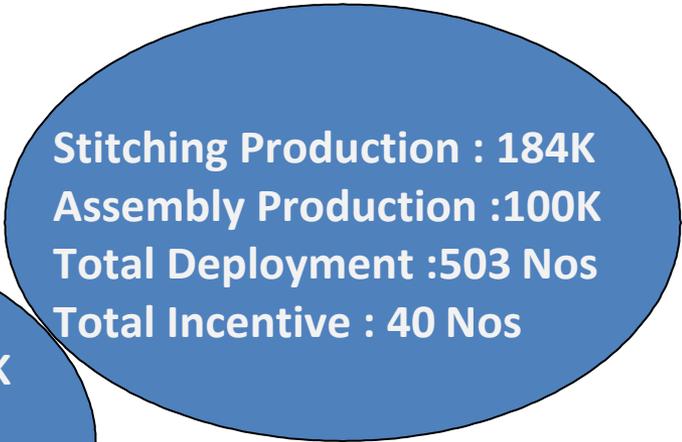
RFL V



Sep – 2011



May - 2012

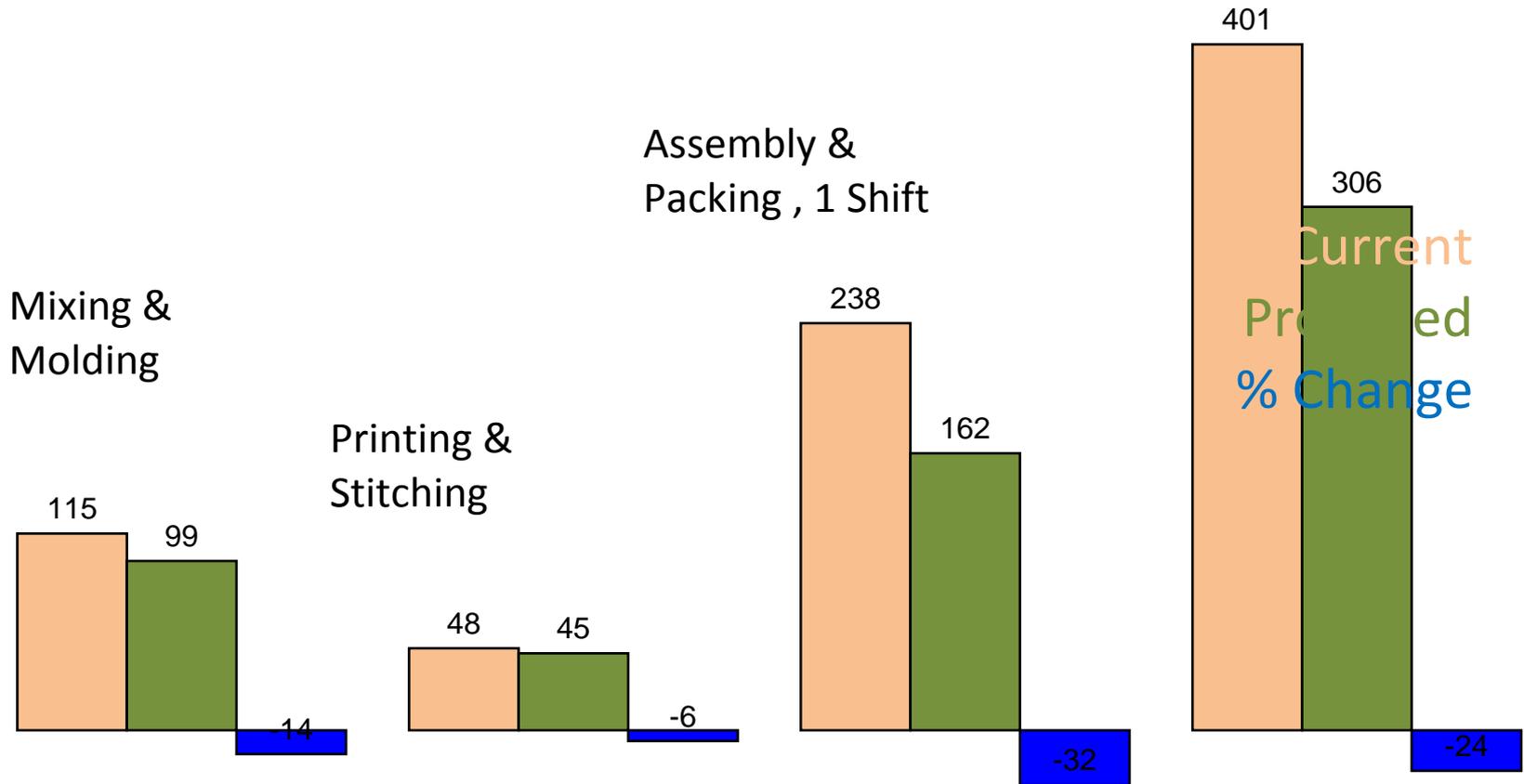


**Note : Stitching Production Converted to Equivalent of SS0101 Production**



# Deployment Norms – RFL IV

## Overall Deployment

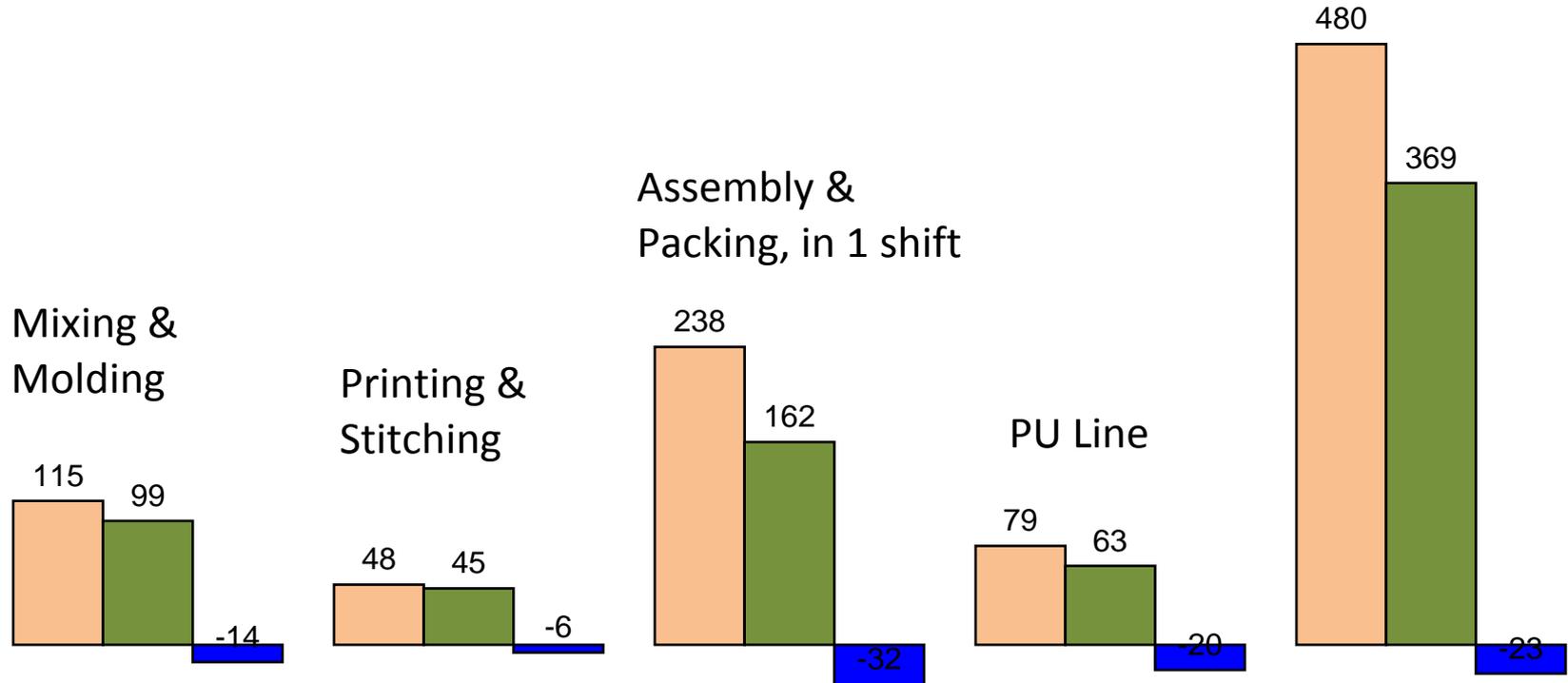


Note : Deployment per shift of 12 Hrs

Deployment in Nos, For Assembly & Packing of 50K Pairs per Day

# Deployment Norms – RFL VI

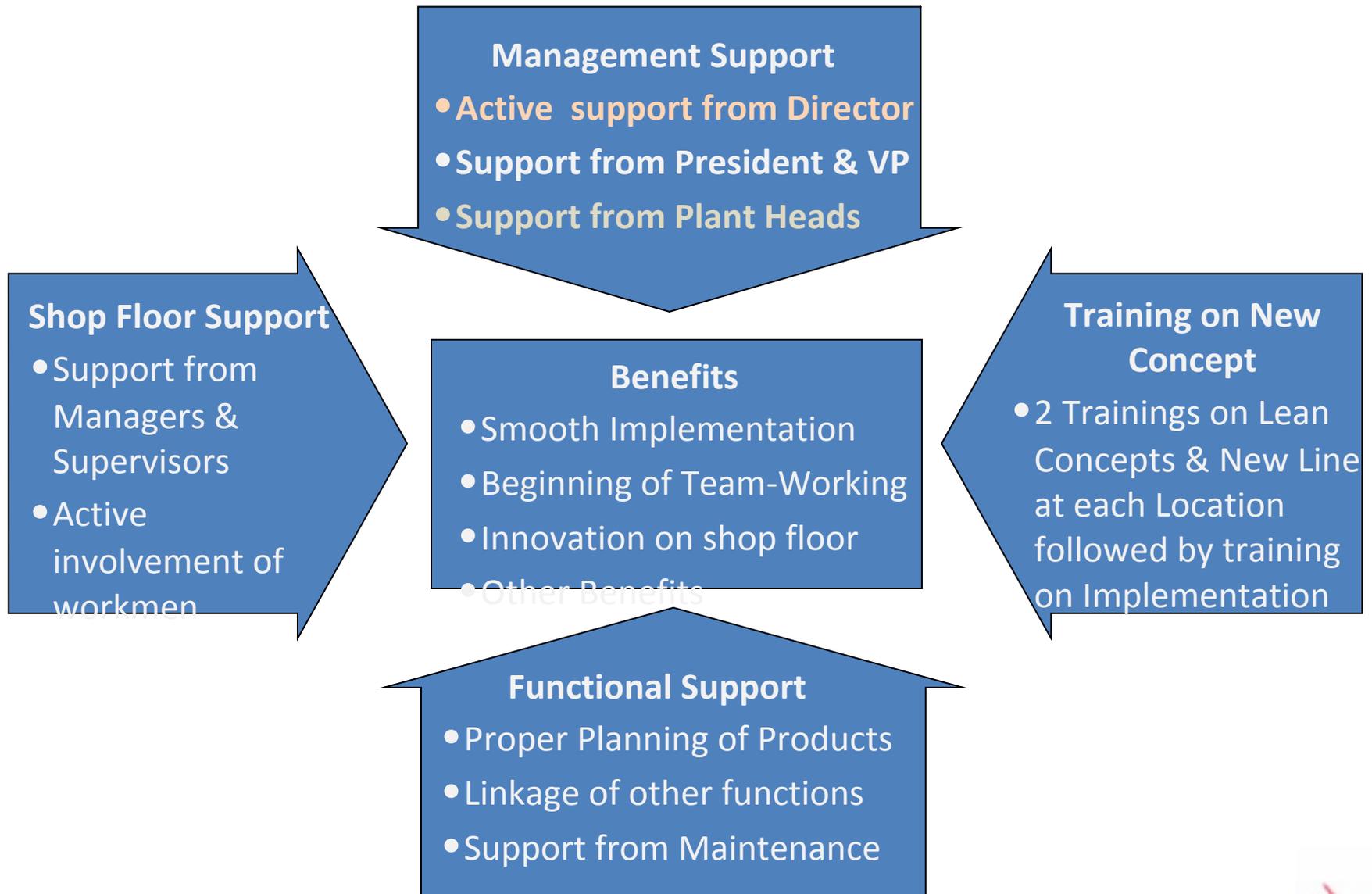
Overall Deployment



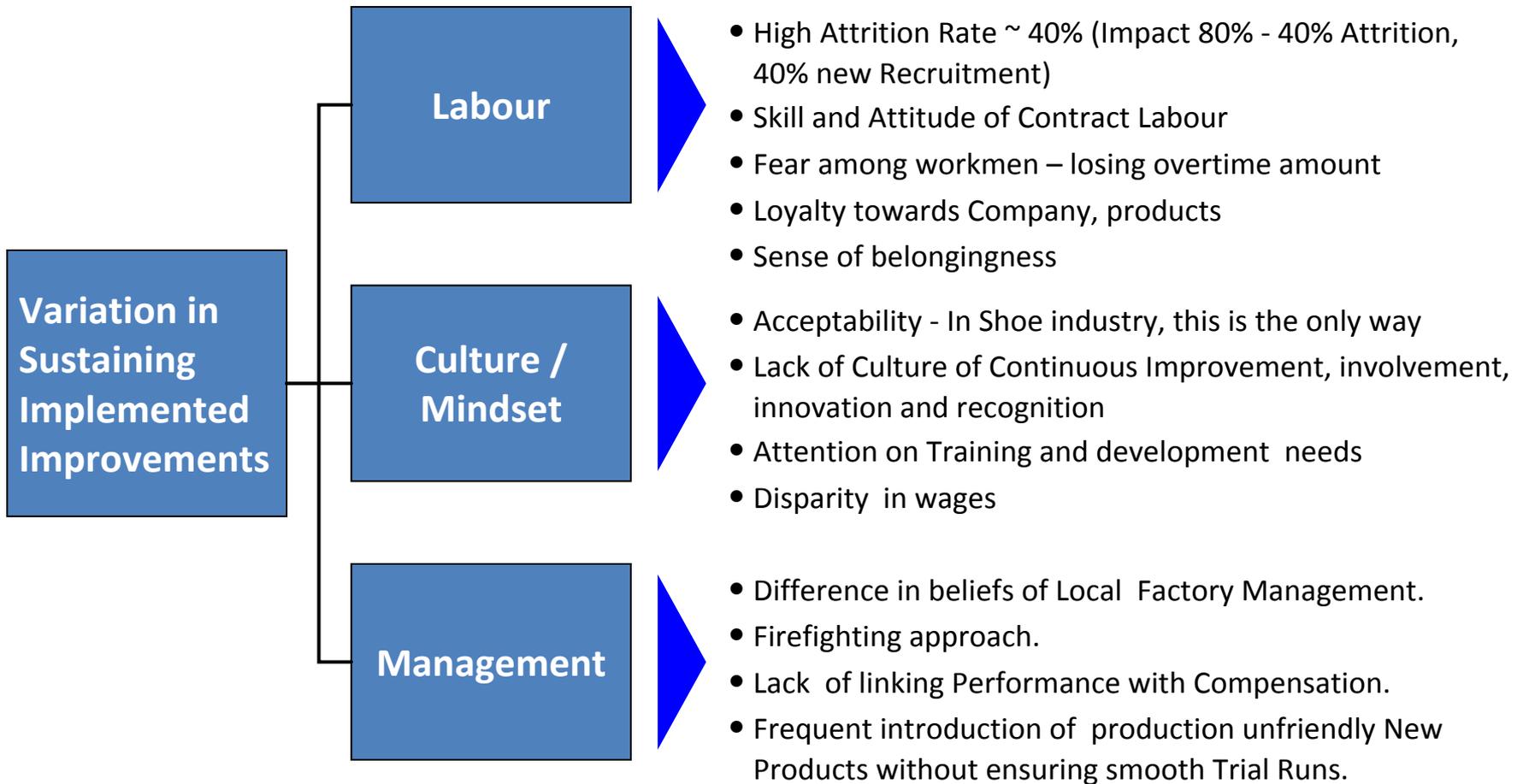
Note : Deployment per shift of 12 Hrs  
 Deployment in Nos, For Assembly & Packing of 50K Pairs per Day

Current  
 Proposed  
 % Change

# Successful Implementation At RFL V & VII



# Variations in Sustaining Improvement



# Plant Capacity –Plant RFL3 Bhiwadi

S.No.	Machine	Qty	Effective Working Hours	Production Pairs/Month	Production Pairs/Day
1	Kneader A	2	1208	5046139	168205
2	Kneader B	3	1812		
3	Kneader C	3	1913		
4	Mixing Mill	10	6246	5963705	198791
5	Calander *	10.5	6105	4371808	145727
6	Sole Press I	6	3640	4352159	145072
7	Sole Press II	2	1214		
8	Strap Press I	7	3995	7760880	258696
9	Strap Press II	1	598		

Capacity of Plant

1	Cutting M/C I	1	607	5416896	180563
2	Cutting M/C II	14	8493		
3	Cutting M/C III	1	607		
4	Drill M/C I	22	13346	11792880	393096
5	Drill M/C II	5	3033		

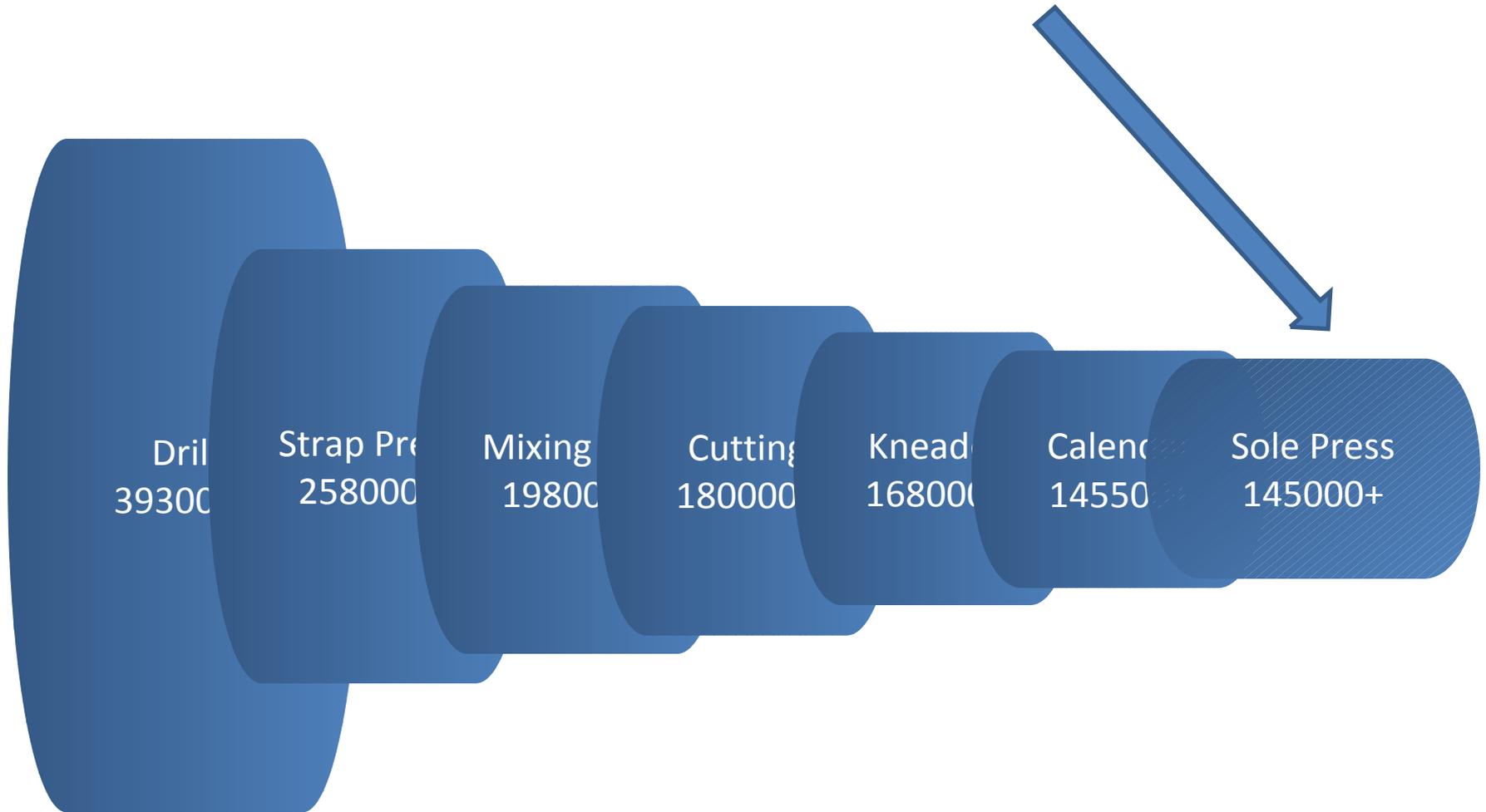
Note: Cycle Time includes Process Time & Loading/Unloading Time

Note: [Calculations sheet](#)

 Indicates Variable time, can be reduced

# Ideal Plant Capacity / Day RFL U3

Considering lunch, tea, maintenance and other allowances



# Towards Excellence

- Quality of Sparx products need attention and improvement.
- The information is based on the experience of consultants after purchase of shoes and sandals, random checking of in-process items and sporadic feedback from retailers.
- The improvements in quality systems, methods and checking practices will increase sales, improve costs.
- It was recommended that a forum should be made where all the plants share their good practices.
- Excessive space is being used for Operations, it was reduced while rearrangement of Stitching and Assembly Lines
- Lot of space (may be order of 50% in some plants) tied up to keep raw, in-process material and finished goods



- 135 improvements were suggested in all units except 1 and 2 where study is in progress. Some of these were implemented. More are possible and need more time and involvement.
- Punching and Stamping processes can be drastically improved
- Work places may be further modified to avoid congestion, bending, body movements use of right tools and layout
- Many unnecessary practices were stopped or simplified.
- Counting and Marking operations simplified. Bunching and tying with rubber band is reduced.
- Utilization of sheets is not cared much, perhaps due to possible recycling. Yield and process time connected with it can be improved.
- Mechanization of loading at Kneaders, cleaning, handling and cooling of molded items is suggested to increase output.



# Immediate Remedies

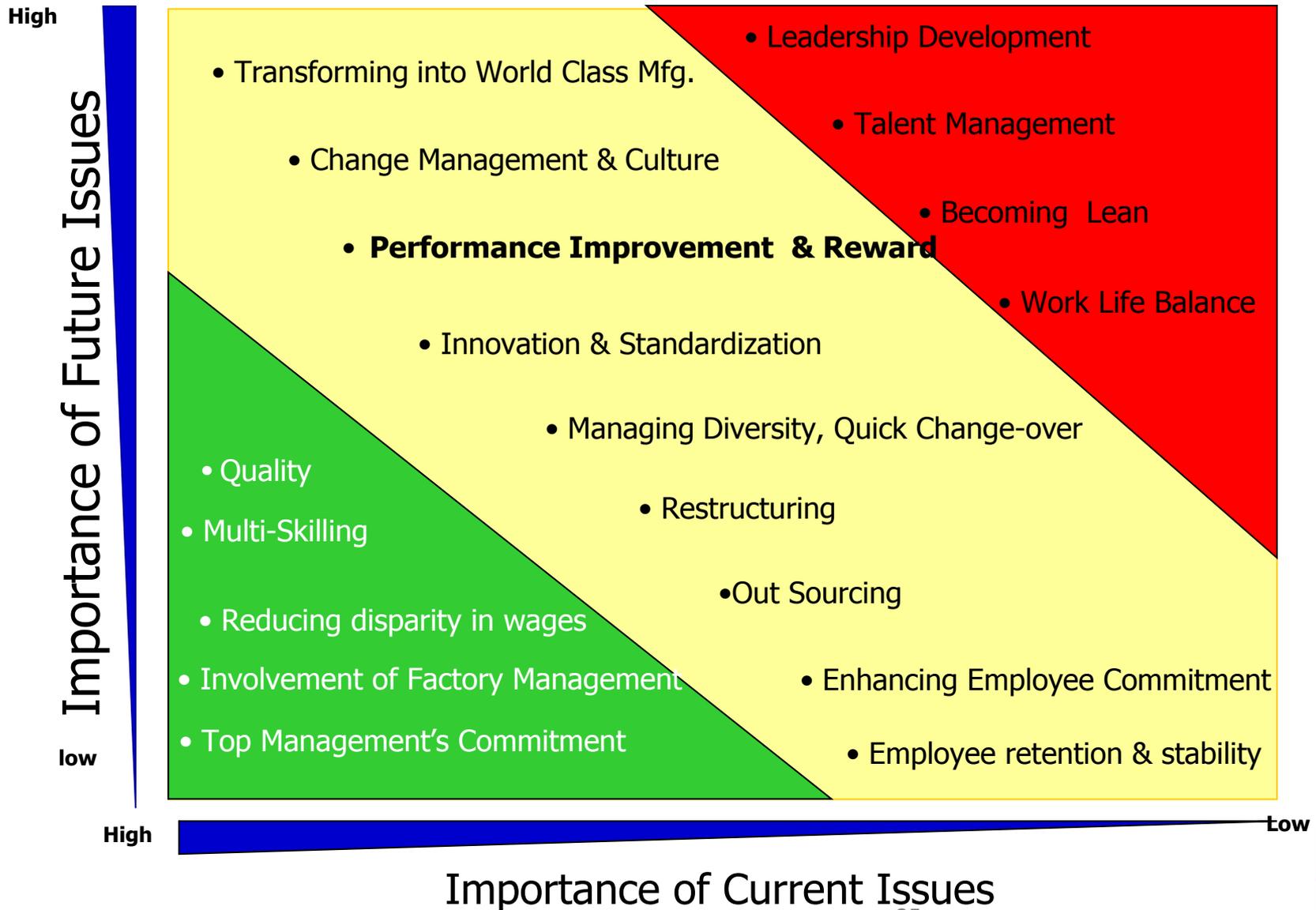
## Rank

## Purposes

1. Evaluate the Jobs
2. Deploy right talent
3. Enforce Standards, implement recommendations
4. Develop Multi Skilling
5. Inculcate Continuous Improvement Culture
6. Pay for Performance
7. Encourage Innovation
8. Discipline / Dismiss non Performance
9. Improve Layout
10. Retain High Caliber Staff



# Recommendations



# ROAD AHEAD SMILE CHART

