
INSPIRON ENGG. PVT. LTD.

Lean Manufacturing
Implementation Progress
Report

Lean Initiatives

- Project Charter

- ✓ Project Stenter

- ✓ Project Flyer

- ✓ Project Foundry

- ✓ Project Combi-Chain

- ✓ Project Quality Through Design

Lean Project Progress – 8 Step Process

I – Commitment to Lean

II – Choose Value Stream

III – Learn About Lean

IV – Map Current State

V – Identify Lean Matrics

VI – Map Future State

VII – Create Kaizen Plans

Create Flow

Create Pull

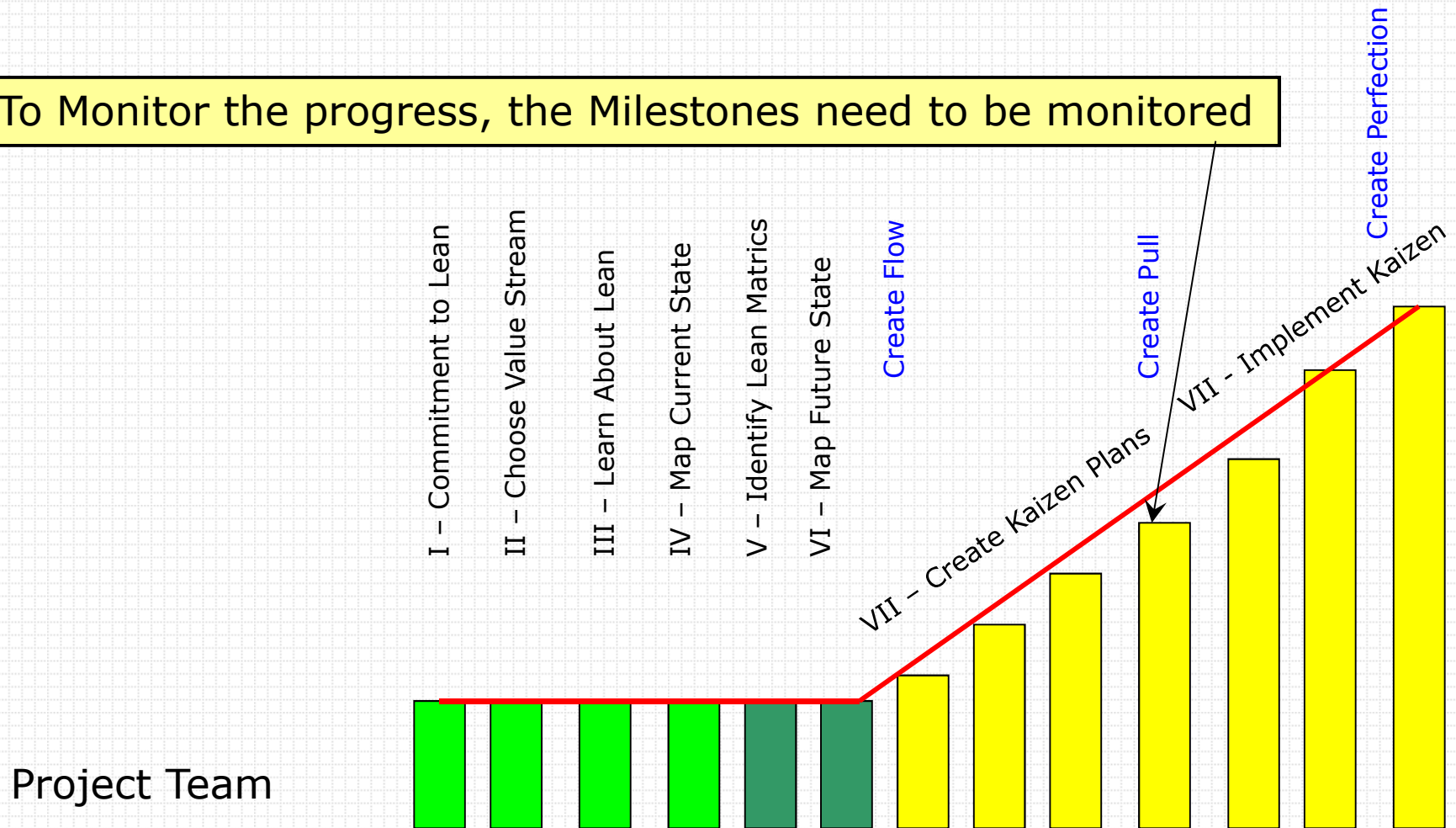
VII - Implement Kaizen

Create Perfection

To Monitor the progress, the Milestones need to be monitored

Tracking Lean Project Progress

To Monitor the progress, the Milestones need to be monitored



Project Stenter

- Goal / Target

- Manufacturing 2 Stenters / Month for Domestic market and 15 Chambers for Monforts (Export)

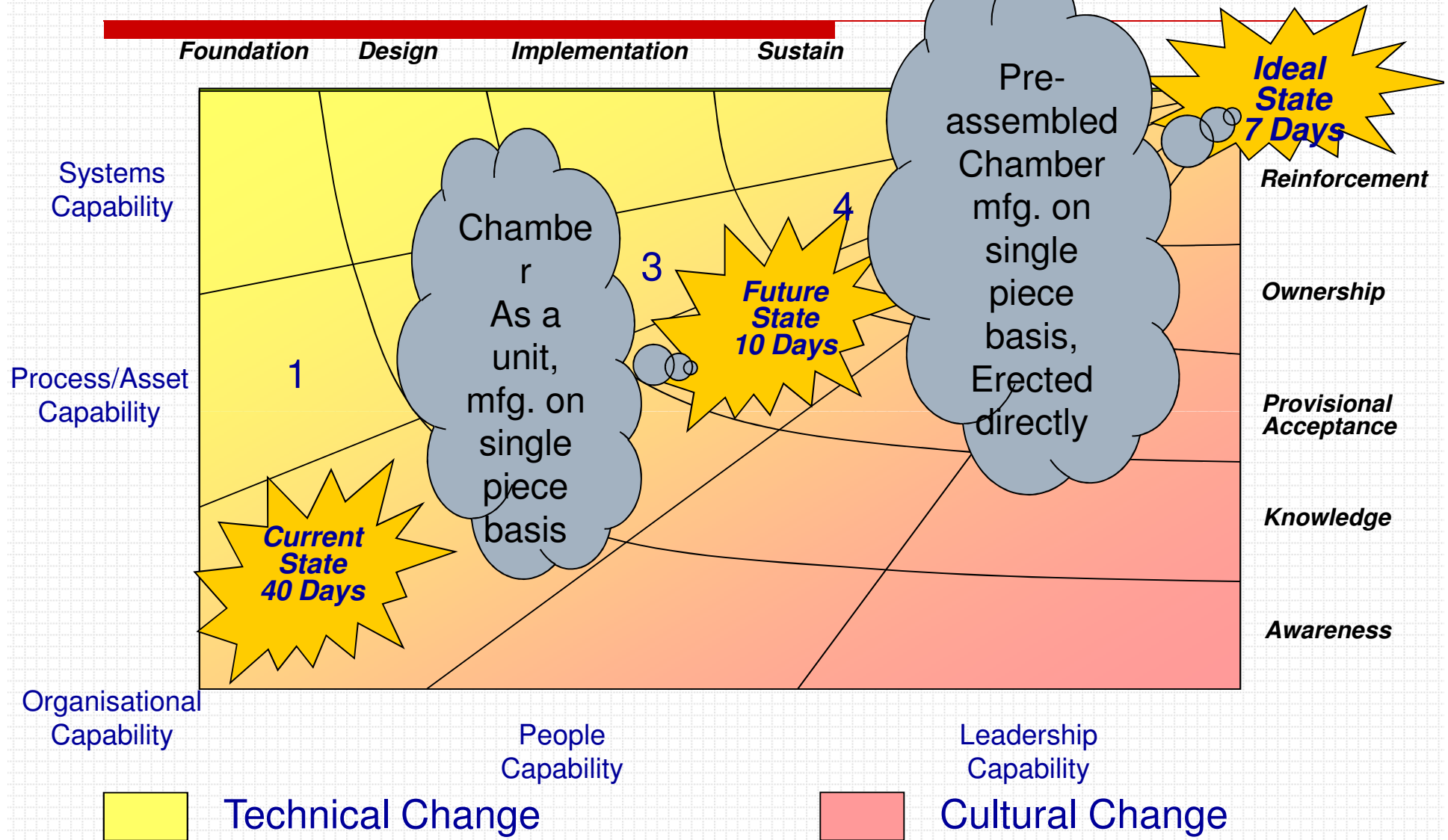
- Target Date

- Domestic – 31st Jul, 2008
- Exports – 31st Dec, 2008

- Ideology

- Manufacturing 1 Chamber per Day
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Lean Manufacturing – Stenter (B200, 6 Ch)



Project Stenter

■ Methodology

- Mapping Current Value Stream and opportunities
 - Batch Production
 - High Inventory
 - Standardization in production - ?
 - Preparing Future State Map
 - Manufacturing 1 chamber per day
 - Defining the Road Map for creating Flow
 - Converting Stenter BOM into Chamber-wise BOM
 - Stenter Fabrication on Two Lines – Chamber, others
 - Implementing the Road Map
 - De-bottlenecking the capacity
 - Creating Pull by producing only when required
 - Creating Perfection by enabling FTR Principle
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Project Stenter – Review 1(17/7/2008)

- Goal

- 1 Chamber Per Day

- Current Status

- Chamber wise Manufacturing Cycle Planned
 - Expected problems listed
 - Setup time expected to increase
 - To Start with ALC Project
 - Team Meetings held – 7
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Project Stenter – Review (31/7/2008)

- Goal

- 1 Chamber Per Day

- Current Status

- Chamber wise Manufacturing of ALC Started
 - Setup time increased,
 - Shop floor acceptability of concept to be developed
 - ALC Project completion Delayed by 5 Days
 - Team Meetings held – 5
 - Chambers / Day – 0.25 (Approx 4 Days/Chamber)
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Project Stenter – Review (5/8/2008)

- Goal

- 1 Chamber Per Day

- Current Status

- Chamber wise Manufacturing of ALC Completed
 - Correction in Methodology required
 - Team Confidence building required
 - Raymond 1 Project completion planned by 23/8/08
 - Team Meetings held – 2
 - Chambers / Day for ALC – 0.5 (Approx 2 Days/Chamber except 40 % components taken from VA Project)
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Project Stenter – Review (9/8/2008)

- Goal

- 1 Chamber Per Day

- Current Status

- Chamber wise Manufacturing of ALC Completed
 - Correction in Methodology
 - To schedule Panels and Nozzles after Assy. Requirement
 - To use full sheets on nibbling
 - To monitor finn-power and Bending output hourly
 - Shop floor acceptability of concept developed
 - Raymond 1 Project completion planned by 23/8/08
 - Team Meetings held – 1
 - Chambers / Day
 - Nibbling 0.65 (Approx 1 Days/Chamber except panel and nozzle)
 - Bending 0.65 (Nibbled components bending on single piece basis)
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Project Stenter

- Finn power to produce 90% components of the machine using full sheet only i.e. shearing to be utilized for only 10% components
 - SMED Application for reducing Setup Time on Bending
 - Re-layout – Fabrication
 - Re-layout – Assembly
 - Faster drying of painted components
 - B/O material to be procured as per the assembly requirement only (in Kit)
 - Sheets to be procured as per required size only
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Project Stenter

- Finn power Utilization 18/9/2008
 - 1
 - 1
 - SMED Application on Bending 26/8/2008
 - Study Setup 26/8/2008
 - Apply SMED 02/9/2008
 - New Method for Setup 17/9/2008
 - Implementation 18/9/2008
 - Re-layout – Fabrication 15/9/2008
 - Re-layout – Assembly 15/9/2008
 - Faster drying of painted components 18/10/2008
 - Kit Based Procurement 18/9/2008
 - Sheets procured in required size only 18/9/2008
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Project Flyer

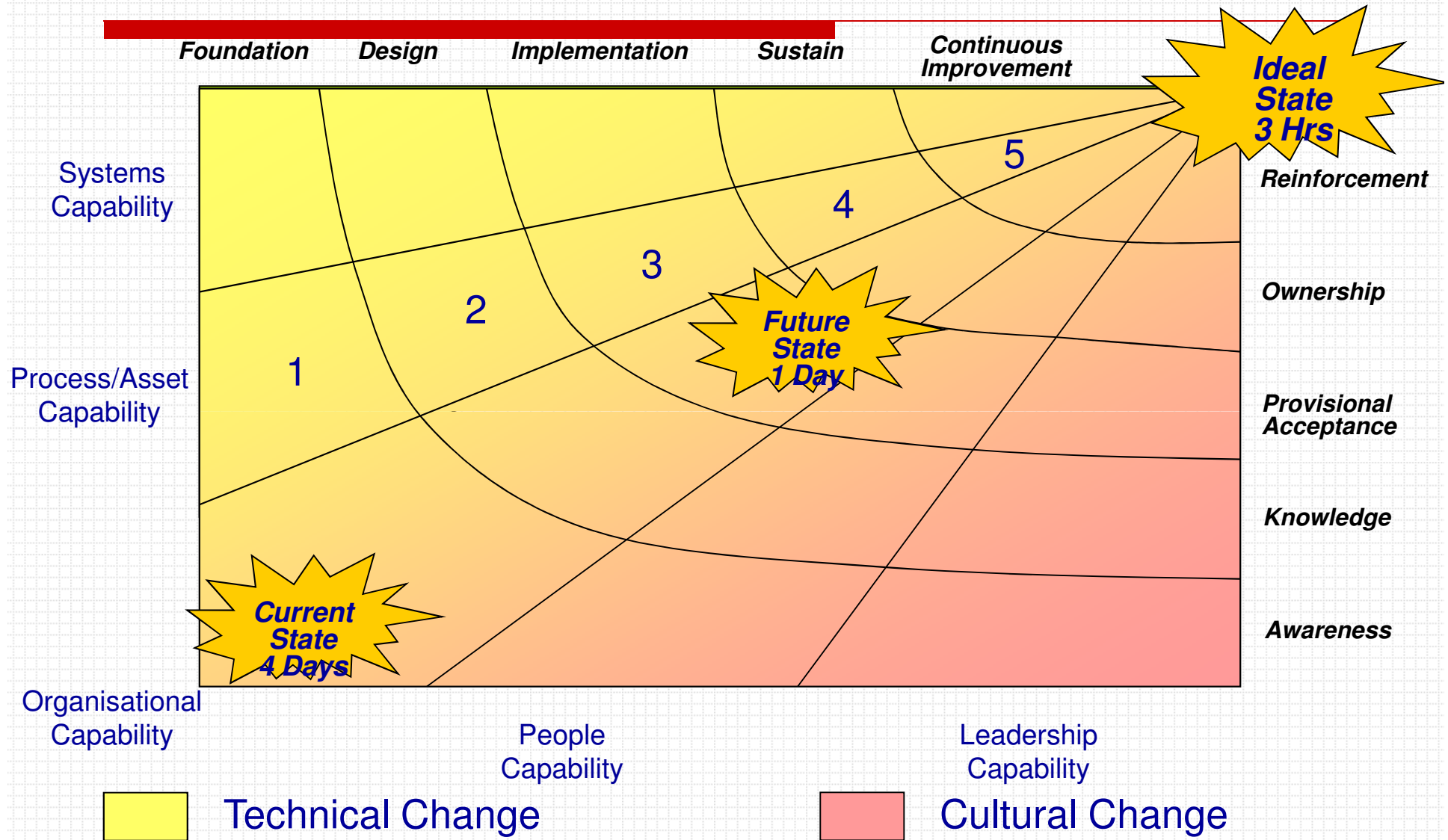
- Goal / Target

- Reduce the Lead time from 4 Days to 1 Day
- Reduce inventory from 800(AC) & 380(ACS) to 300(AC) & 160(ACS)

- Target Date

- 10th Jul, 2008
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Lean Manufacturing – Flyer



Project Flyer

- Methodology

- Mapping Current Value Stream and opportunities

- Single Piece Flow

- Cell Layout

- Multi-skilling

- Manpower requirement – 37, distance – 132.3 m

- Preparing Future State Map

- Lead Time – 1 Day i.e. Flyer loaded in shop to get packed on the same day

- Defining the Road Map for creating Flow

- Enabling single piece flow, Re-layout

- Pushing for complete processing of flyer on same day

- Multi Skilling

- Implementing the Road Map

- Creating Pull by producing only when required

- Creating Perfection by enabling FTR Principle

Project Flyer – Review 1(17/7/2008)

- Goal

- Lead Time – 1 Day

- Current Status

- Flyer loaded in shop gets packed on same day with existing 47 manpower
 - Cell Layout to be designed
 - Manpower reduced to 37 permanent employees
 - To repeat the success with same manpower
 - Team Meetings held – 5
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Project Flyer – Review (5/8/2008)

- Goal

- Lead Time – 1 Day

- Current Status

- Achieved Lead time of 1 Day
 - Awaiting order for establishing 1 day lead time with 37 workmen
 - Re-Layout pending
 - Multi skilling pending
 - Team Meetings held – Nil
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Project Flyer – Review (9/8/2008)

- Goal

- Lead Time – 1 Day

- Current Status

- Same as on 5/8/2008
 - Layout exercise to be completed by 17th Aug, 2008
 - Team Meetings held – 1
 - Multi-skilling and Skill Chart to be started.
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Project Foundry

- Goal / Target

- Reducing Casting rejections

- Casting Rejections < 3.5 %

- Post Machining Casting rejections < 5 %

- Target Date

- - 31st Aug, 2008

- Ideology

- Manufacturing First Time Right

Project Foundry

- Methodology
 - Analyzing Casting Rejections
 - Identifying & Prioritizing High rejection Components
 - Production Volume
 - Repeat order
 - Rejection Volume
 - Defining the Road Map for Rejection Reduction
 - Root Cause Analysis for selected Components
 - Identifying Root Cause for defect
 - Validating Root cause by DOE
 - Applying the Corrective Measures
 - Applying preventive measures for other components having similar defect
 - Implementing the Road Map
 - Creating Perfection by enabling FTR Principle
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Project Foundry – Review 1(17/7/2008)

■ Goal

- Reducing Casting rejections
 - Casting Rejections < 3.5 %
 - Post Machining Casting rejections < 5 %

■ Current Status

- Average Casting rejection for past 6 months
 - Casting Rejections 6.12 %
 - Post Machining Casting rejections 7.72 %
 - Average Casting rejection for June
 - Casting Rejections 4.5 %
 - Post Machining Casting rejections 6.2 %
 - Identification of high rejection components done
 - Expected root causes listed
 - Team Meetings held - 4
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Project Foundry – Review (5/8/2008)

- Goal

- Reducing Casting rejections
 - Casting Rejections < 3.5 %
 - Post Machining Casting rejections < 5 %

- Current Status

- Overall Foundry Rejection for July – 8.72 %
 - Rejection higher than average for 6 months
 - Action Plan for achieving Target Expected by 7/8/2008
 - Team Meetings held –
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Project Combi-Chain

- Goal / Target

- Increasing the production capacity of Combi-Chain Top part from 2000 to 5000 PM.
 - Producing 200 nos/day (1 shift)

- Target Date

- – 31st Aug, 2008

- Ideology

- Manufacturing First Time Right, on single piece basis.
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Project Combi-Chain

- Methodology
 - Mapping Current Value Stream and opportunities
 - Single Piece Flow
 - Cell Layout
 - Multi-skilling
 - Manpower requirement – 10
 - Heat Treatment & 1st Lapping process ???
 - Preparing Future State Map
 - Cell Layout, with one person assembling the complete combi-Chain Top part
 - Eliminating NVA
 - Defining the Road Map for creating Flow
 - Analyzing NVA operations – Heat Treatment, 1st Lapping
 - DOE for validating NVA
 - Re-designing processing for assly.
 - Enabling single piece flow, Cell-layout
 - Multi Skilling
 - Implementing the Road Map
 - Creating Perfection by enabling FTR Principle
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Project Combi-Chain – Review 1(17/7/2008)

■ Goal

- Increase production capacity of Combi-Chain Top part from 2000 to 5000 PM.
 - Producing 200 nos/day (1 shift)

■ Current Status

- Analysis and experimentation for NVA activities done
 - Heat Treatment – NVA (Experiments done, discussed with Mr. Panjekar)
 - To be implemented for Domestic, To be discussed and finalized for Exports
 - Manufacturing process in 4 cells
 - Putty Fitting & Taster Filing (2, 30/hr)
 - Combi Chain Assembly (4, 7.5/hr/cell)
 - Lapping (4, 7.5/hr/cell)
 - Inspection and Packing (2*, 30/hr)
 - (*Inspection to be done by QA & Prod)
 - Team Meetings held – 7
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Project Combi-Chain – Review (5/8/2008)

- **Goal**

- Increase production capacity of Combi-Chain Top part from 2000 to 5000 PM.
 - Producing 200 nos/day (1 shift)

- **Current Status**

- Training for Workplace Layout given
 - Work table Layout Pending
 - Team Meetings held – 2
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