Create a Common Industrial Culture Based on Efficiency Improvement

EMS Summit

Berlin, 27th November 2018
Agenda

PMS: The Lean Manufacturing in Pirelli / Prometeon

New Context for PMS and new challenges

Create a Common Efficiency increase system

- Management Commitment and empowerment of an organization
- Kaizen Weeks
- The Trainers
- POSS (Pirelli / Prometeon Operations Steering System)

Quick Conclusion and next challenges
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Quick Conclusion and next challenges
“Building sustainable Continuous Improvement culture from INSIDE”
Drivers of Change

REALITY 2008:

➢ PRODUCT COMPLEXITY

➢ AGGRESSIVE COMPETITION

➢ NEW FACTORIES AND COUNTRIES

➢ PEOPLE ENGAGEMENT AS CHALLENGE
Pirelli Manufacturing System

- Japanese Consulting
- Focus on Machines
- Creation of Specialists
- Methods development
- KPI Monitoring

**W-COM**
- Internal Benchmarking
- Creation of Specialists
- Pillar Structure

**Training of Methods**
- To Select Specialists

**PMS ELEMENTS**
- CREATE A SYSTEM
- BACK TO BASICS
- STANDARDS
- 100% INVOLVEMENT ALL LEVELS
- COMMUNICATION
Pirelli Manufacturing System

It is **our management system** to ensure **performance, culture and results** for the Pirelli Operation

**Our Vision:** Create a competitive Tyre Operation to ensure a successful future. This based on a strong culture for people, excellent products and value creation for **customers** (and stakeholders).

“Uniting 20 plants in 4 continents with a common language & standard approach... in operations on the base of standard, Continuous Improvement and engagement”
VALUE CREATION FOR THE CUSTOMER

PEOPLE

- ORGANIZATIONAL MODEL
- ROLE COMPETENCES
- REWARD SYSTEM
- TRAINING & DEVELOPMENT
- COMMUNICATION
- TEAM WORK

CONTINUOUS IMPROVEMENT

SAFETY PEOPLE QUALITY DELIVERY COST

TOOLS

- VALUE STREAM MAP
- SS
- STANDARD OPERATION PROCEDURE
- PROBLEM SOLVING
- BENCHMARKING
- AUTONOMOUS MANAGEMENT
- QUALITY MAINTENANCE
- BEHAVIOUR BASED SAFETY
- PULL SYSTEM
- KAIZEN WEEK

STABILITY & STANDARDS

OBJECTIVES, VALUES, BEHAVIORS PEOPLE ENGAGEMENT
PMS Overview

**DESIGN**  Jan. 2012

- **Kaizen Weeks**
- **MANUFACTURING ACADEMY**
- **M2L**
- **MANAGING TO LEAN(R)N**

**EFFICIENCY**

- **International Benchmarking**
- **Value Stream Mapping + Strategic Workshop**
- **Gap Analysis by Managers**
- **M2L Lean for Management**
- **M2L**

**SUSTAINABILITY**  Dec. 2017

- **BREAKTHROUGH**
- **382,8 M€**
- **154,5 M€ 2016+17**
- **88,6 M€ 2015**
- **92,8 M€ 2014**
- **46,9 M€ 2013**

**International Benchmarking**

**Value Stream Mapping + Strategic Workshop**

**Gap Analysis by Managers**

**M2L Lean for Management**

**M2L**

**Manufacturing Community**

**Industry 4.0**

**Pirelli**

**PROMETEON**

Prometeon Tyre Group – Strictly Confidential
PMS: The Lean Manufacturing in Pirelli / Prometeon

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**Pirelli Industrial & Aeolus Footprint 2015**

Pirelli Industrial: 8 production facilities in 6 countries
- 8,000 employees

Aeolus: 6 facilities in 1 country
- 14,000 employees

Countries represented:
- Brazil
- Egypt
- Turkey
- Russia
- China
- Venezuela
New Challenges 2016 and integration

New Challenges 2016:

➢ PRODUCT COMPLEXITY (1 brand vs 24)

➢ Need drastic improvement of Chemchina products

➢ Raw material price increase (profitability drop)

➢ 6 NEW FACTORIES to integrate with 14 000 employees
  ➢ From 6M pcs capacity to 16M pcs

➢ Pirelli PEOPLE ENGAGEMENT AS CHALLENGE

➢ Chemchina People Engagement as a challenge
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Management commitment and empowerment of an organization

Kaizen Weeks

The Trainers

POSS (Pirelli / Prometeon Operations Steering System)

Quick Conclusion and next challenges
Management Commitment and empowerment of an organization

1. Close the Tubes Production – 34 BC + X WC + 725 HK/year
2. Tread extrusion from 9 to 6 people – 40 HC – Trainer Gravatal - St André - ATCO
3. Master Batch Mixer from 4 to 3 people – 36 HC – Trainer Gravatal - St André - ATCO
4. Final Mix Mixer from 5 to 4 people – 36 HC – Trainer St André - ATCO
5. Calender from 9 to 6 people – 18 HC – TBO
6. Sidewall extrusion from 7 to 4 people – 23 HC – Trainer Gravatal St Andol – ATCO
7. Tire Building 2 drums LCZ crew from 3 to 2 people – 50 HC – Trainer Atco
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**Kaizen Weeks**

- The Trainers

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Quick Conclusion and next challenges
Kaizen Weeks: Basic concept

A Kaizen week is a 1-week team work event
✓ Improving a well target issue
✓ Involvement of operators in a cross-functional team
✓ Learn by doing – go to Gemba
✓ Try storming & Problem Solving
✓ Experts & international collaboration
✓ Success story through rapid changes

Boost Efficiency and Competitiveness

1. Preparation = 4 weeks
- BANBURY 1
- Set-Up Losses Avg. 16%

2. Execution = 1 week
- Involve
- Training by doing
- Deploy Best Practices

3. Follow Up = 8 - 12 weeks

Ensure Standards

Inproving a well target issue
Involvement of operators in a cross-functional team
Learn by doing – go to Gemba
Try storming & Problem Solving
Experts & international collaboration
Success story through rapid changes

Boost Efficiency and Competitiveness

1. Preparation = 4 weeks

2. Execution = 1 week

3. Follow Up = 8 - 12 weeks

Ensure Standards
Planning and Preparation - TIPS

The success of a K-W depends on how well it is planned and prepared.

Slice the biggest problems in smaller subject on which you are sur to get a success story.

Analyze the actual situation and set targets achievable in one week, but challenging
Planning and Preparation: Select the team & Prepare the area

- Select a multi-functional Kaizen team to increase the chances for success
- Most of the team should be from the operators of the area (ensure the acceptance of new ideas)
- Get a natural leader as well

Communicate the event to all the area in order to make it a collective event
12 key points for a successful Kaizen event

1. Forget (abandon) fixed ideas, refuse actual status of things
2. Instead of explaining what cannot be done, think on how to do it
3. Immediately make the good improvement proposals
4. Do not search for perfection, gain 60% immediately
5. Correct mistakes immediately on site
6. Make problems insupportable and find ideas in the difficulty
7. Search for real root causes, respect the «5 why?» and only then search for solution
8. Consider the ideas of 10 people instead of waiting for the genius idea of one
9. Try and then validate
10. Measure the progress made
11. Copy, improve, paste
12. Improvement has no end
Execution: Gap Analysis & Solution approach

- Identification of current situation vs targets established, show data collected on preparation phase
- Put in evidence the problem, create an area for samples
- Understand root causes and begin with brainstorming for possible solutions
- Begin transforming through rapid experiments (build, move, change)
- Decide carefully, implement quickly
Execution : Trial and debug

Try-storming of new processes
Observe and record new process performance
Compare and discuss actual performance with target expected
Document issues, resolve problems and run more trials
Execution : Standardize

Document new processes, create new standards
Train people in the new standards
Define indicators to monitor new performance
Create visual management to see deviations
Action plan with missing actions and potential improvements for late execution
Execution: Out brief

Presentation of results to Management team and stakeholders
Show the change on shop floor & demonstrate results
Out brief: recognition of team and the results:

Celebrate the results achieved and celebrating the collective successes is a key factor for further improvement.
Follow Up and sustainability

No systemetic follow up = No sustainable results

Top management & Area Leaders should do a Gemba walk every day to show their commitment and follow up on the results.

Returning to the old process is not an option!

Having a dedicated organizations for the standardization and training of the people to the new standards defined ensure the best results
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Quick Conclusion and next challenges
Blue Collars trainers

«Human capital is the engine of our efficiency»
Train, Coach and practice
The Blue collar trainer: A dedicated coach for the others

**Percent of information retained when adults...**

- **Problem-solve**: 95%
- **Experience**: 80%
- **Discuss**: 70%
- **See & hear**: 50%
- **See**: 30%
- **Hear**: 20%
- **Read**: 10%

- **‘Experiential learning’ is the preferred approach for adult capability building**

Creation of a group of best operators 100% dedicated to Training

- Permanent coaching
- Learning by doing
- Supported by Kaizen weeks

Trainers are the key role for the efficiency improvement.

**SOURCE:** Vella, Jane
*Learning To Listen, Learning To Teach: the power of dialogue in Educating Adults*

Blue Collar Trainers : Identification

PMS Blue Collars Trainer : Issued from the shopfloor

The Key criteria for identification:

- Passion and motivation to be a trainer
- Living the Pirelli / Prometeon values
- Act as example (Safety, Quality, Efficiency)
- Recognized by others as a natural leader & capable to guide others
- Proactive attitude
- Technical and specialist skills
Blue collars: Mission

Main daily-working tasks

- Check adherence to standards & Procedures
- Guarantee the effectiveness of the training
- Define, check and improve standards and training documents
- Continuous improvement of existing standards
- Define training schedules
- Frequency-based re-evaluation of the operators
- Alert deviations
- 80% training on the job – 20% Kaizen
Blue Collars Trainers: Road Map and Mission

### BC TRAINERS

**“TRAINER” REQUIREMENTS**
- Passion to be a trainer
- Living the Company values
- Act as example
- Natural leader
- Proactive attitude
- Technical and specialist skills

### Awareness

- Training system setting

### Engagement

- Measuring results
  - Safety
  - Quality
  - Efficiency

### Consolidation

- “MANUFACTURING EXPERTS” in:
  - Plant Start Up & Extension
  - Training Standard Design
  - Task force to boost Efficiency

### Extension

- BC MANUFACTURING EXPERTS
  - “MANUFACTURING EXPERT” REQUIREMENTS

**BLUE COLLAR TRAINERS in TYRE PLANTS**

**Maturity Level of BC Training Management**
Blue collar trainers: Who are they?
Success stories

Results improvement of new & mature operators

Support of ramp-up of the plants

Local & international task-forces to boost efficiency

Transfer of Know-how in other plants
The PDCA Enabler
Structured standard training approach as innovative part of Pirelli Manufacturing System

BC Training System based on 5 key-elements

Blue Collars Training System
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3. Create a Common Efficiency increase system
   - Management commitment and empowerment of an organization
   - Kaizen Weeks
   - The Trainers
4. POSS (Pirelli / Prometeon Operations Steering System)
5. Quick Conclusion and next challenges
Context:

- Big investment in engaging the operators and cross-functional team in continuous improvement
- Things are changing and people ask to participate
- The trainers are set and participate actively in improving the efficiency
- Now we have to invest more on the shift leaders in order to support them
- This is a key category of managers with a lot of responsibility and pressure
  - ...
What is POSS?

• POSS (Prometeon Operation Steering System);

• POSS (Prometeon Operation Steering System) is a set of tools, organization procedures and practices which together aim effectively to:
  
  • Steer the performance and follow the standardized work implementation daily
  • Identify, analyze and resolve problems in real time by involving everyone
  • Launch the help chain when we encounter difficulties
  • …
Short Interval Management: POSS Levels

KPI Management Board
(Factory Name) - 2012

Factory
POSS Level 3

Area
POSS Level 2

Cell
POSS Level 1
Escalation of issues = HELP

When we are in a review, e.g. daily review, IF we can not solve the deviations in this forum, Escalation.
POSS and the Lack of Competence

This approach enables management to actively participate in the process of systematically describing:
- Activities
- Decisions to be accomplished
- Clarity of responsibilities
The Basic concepts of POSS

Management Experts

- Defining goals, establishing strategies for achieving those goals, and developing plans to integrate and coordinate activities

- Define which tasks have to be done, who has to do them, who reports to whom, and where decisions are made

- Directing and motivating all involved parties and dealing with employee behavior issues

- Monitoring activities to ensure that they are going as planned
POSS : Goal alignment & Results follow up

Pirelli Operation Steering System

- Ensure the deployment from Strategic Vision to Operational Indicators
- Clear definition of Roles and Responsibilities
- Provide Tools & Methods to management
Prometeon Operations Steering System

Transformation Map

Goal Alignment

Shift Performance Review

Industrial Choices

Business priorities

Factory Operational Master Plan

New Standards

Process control

Factory KPI targets

Result plans

Loss priorities

Monthly Performance Review

Kaizen week / Improvement teams

Strategy Deployment

Business priorities

Industrial Choices

Factory Operational Master Plan

Process control

Factory KPI targets

Result plans

Loss priorities

Monthly Performance Review

Strategy Deployment

Business priorities

Industrial Choices

Factory Operational Master Plan

Process control

Factory KPI targets

Result plans

Loss priorities

Monthly Performance Review

Short Interval Management

Daily control to minimize deviations

Weekly Performance Review

Daily Performance Review

Weekly Performance Review

Daily Performance Review

Prometeon Tyre Group – Strictly Confidential
Standard meeting agenda

- 08:00: Quality Handover Meeting
- 08:30: Production Handover Meeting
- 09:00: Metallic Scrap Evaluation Meeting
- 09:30: Shift Cross Function Meeting
- 09:30: Maintenance Meeting
- 10:00: Mini Coordination Meeting
- 11:00: Coordination Meeting
- 11:30: SF Declasato Meeting
- 12:00: Finished Product Declasato Meeting (BLD + CUR + SF) Qual. & Prod. & Maint.
Before / After

Before

After
2 Shift Leader development

**Assessment gap-analysis**

**PRODUCTION AREA MANAGER**

**SHOP FLOOR LEADER : CAPITANO**

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<td>Tyre Product and process</td>
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<td>Quality basics and BBQ</td>
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<td>Position your workers</td>
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<tr>
<td>Own your continuous improve</td>
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<td>Execute your production plan</td>
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<td>Check your hourly performance</td>
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<tr>
<td>Ensure your standards</td>
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<td>Plan your manpower</td>
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<td>Problem solving &amp; decision making</td>
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<tr>
<td>Execution &amp; Discipline</td>
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<tr>
<td>Inspiring &amp; motivating people</td>
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<tr>
<td>Communication &amp; networking</td>
<td>5</td>
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<tr>
<td>Resilience &amp; adaptability</td>
<td>4</td>
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<tr>
<td>Leadership</td>
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**on shift timelapse**

HSE basics and BBS
PMS tools and methods
Tyre Product and process
Labour law contract
Quality basics and BBQ
Maintenance knowledge
Industrial costs drivers

Oversee your shopfloor
Position your workers
Own your continuous improvement
Execute your production plan
Check your hourly performance
Ensure your standards
Plan your manpower
Example of POSS rooms

Two boards for the OPI Management (1 for each day)

Maintenance Management board

Deviations analysis board (1 per shift)

Detail of the main information

A  B  C  D

POSS Activities

Clock

Contracto de las reuniones

Time of Meetings

RACI matrix (two areas)

Meetings records
Common and Standardized approach WW
Main Results – 2017-2018

~600,000 Training hours

340 HC Efficiency

120 Kaizen weeks

+9% volume increase

80 Blue Collar Trainers

Product improvement at 0 cost

Capacity Increase at 0 cost

Shift Change at 0 cost

1  4

Shared Contents
✓ Industrial Efficiency  Basic Training
✓ Standard time definition
✓ OEE / Losses
✓ 5S Training
✓ Restoring Basic Conditions
✓ PET Training
✓ POSS training

Prometeon Management System (PMS)
Main results

2 prizes won in 2017:

- 1st Prize of Best team for efficiency increase in Chemchina
- 1st Prize Best Innovation team in Chemchina tyre division
Agenda

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New Context for PMS and new challenges

Focus on a few methodologies to ensure a success story

- Management Commitment and empowerment of an organization
- Kaizen Weeks
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Quick Conclusion and next challenges
Quick conclusion on methodology

In order to generate sustainable efficiencies:

Empower an organization to steer the operational excellence

Create a succession of success stories to create trust, win support and interest (KW)

Free capacity (HC) to develop the trainers (KW)

Empower a shop-floor quick reaction organization to deploy and sustain standards and efficiency: The trainers

Support the management, Deploy a quick help-chain from the shopfloor and deploy clear targets (POSS)