Lean, TPM, and DATA
What, Who, Why and How
What’s Lean…

**Transport** - Moving people, products, information

**Inventory** - Storing things, supplies, documentation, information

**Motion** - Bending, turning, reaching, lifting, avoidable repetitive motion

**Waiting** - For work, information, instructions, approvals

**Over production** - Making more than is immediately required

**Over processing** – Ineffective processes, doing unnecessary work

**Defects** – Errors, incomplete information, scrap and rework

**Skills** - Under utilizing capabilities, under-developed problem solving skill
What’s TPM…

“The TPM is a plant improvement methodology which enables continuous and rapid improvement through use of employee involvement, employee empowerment, and closed-loop measurement of results.”

Seiichi Nakajima

TPM Development Program: Implementing Total Productive Maintenance
Productivity Press, 1989
Definition(s)

So what does maintenance mean…

**Maintenance** = The act of maintaining

**Maintain** = To keep in a state of order. To keep in due (rightful, proper, fitting) condition, operation, or force; keep unimpaired.
What’s missing…

**Transport** - Moving people, products, information

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**Waiting** - For work, information, instructions, approvals

**Over production** - Making more than is immediately required

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**Defects** – Errors, incomplete information, scrap and rework

**Skills** - Under utilizing capabilities, under-developed problem solving skill
Definition(s) cont...

Fix and Repair ⇐ Maintenance

**HOZEN** (Maintenance in Japanese) = Maintaining and preserving perfection through Asset Management

Fix/Repair...The 9th waste!!!!
Why TPM

“It’s the “life blood” of a Lean Organization. You CANNOT become lean or sustain your lean gains WITHOUT reliable equipment/processes.”

“TPM to a Lean Organization is viewed as an investment (not a cost)...It’s the BEDROCK (ENABLER) you build your Lean organization on!”

Ellis New, Productivity, Inc.
“You don’t implement LEAN, it’s what you BECOME…TPM is the ENABLER to lean!”
TPM Goals

- Zero accidents
- Minimum life cycle cost
- Zero unplanned downtime
- Zero speed losses
- Zero defects
Productivity’s TPM Pillars

Nakajima Five + Three

- Autonomous Maintenance
- Maintenance Improvement
- Training and Skill Development
- Focused Improvement
- Early Equipment Management
- Quality Maintenance
- Environment, Health and Safety
- Office TPM
Characteristics of TPM

- Optimum relationships between people and equipment/process
- Involvement of everyone, from top leadership to shop floor workers
- A cross-functional approach, involving all departments
- Implementation through small group teamwork
- DATA DRIVEN!!!
Focused Improvement

Includes all activities that maximize the overall effectiveness of equipment, processes, and plants through uncompromising elimination of losses and improvement of performance.

Note: The basic point to remember about FI is that if an organization is already making all possible improvements in the course of routine work and small-group activities, FI may not be necessary.
FI Should NEVER…

…replace/displace Small-Group improvement activity.

Managers and staff must be careful not to become so engrossed in focused improvement that they neglect to support small-group activities at the line and shop floor level, since this may have the opposite effect and actually damage the overall TPM process. It is, therefore vital to give people a sense of achievement by actively encouraging the improvement aspect of the TPM-Autonomous Maintenance process and carefully nurturing ideas that evolve there. This kind of activity permeates the organization with great energy and enthusiasm.
If you are not going to use data, *don’t collect it!*
Using Data Appropriately

- To keep management and shop floor personnel informed of progress
- To drive and fine-tune improvement activities
- To educate the plant community
Seeing Is Believing

- The way we report and display data affects how we think about it

- Effective analysis depends on effective reporting
Effective Reporting/Analysis

- Involve users in measurement
- Provide results to people who can act on them
- Present results in the appropriate form for your audience
- Visually link results with specific improvement initiatives
- Report data in a timely manner
Good data is...

- directly related to strategy
- primarily non-financial measures
- could vary between locations
- changes over time
- simple and easy to use
- provides fast feedback
- fosters improvement
The checklist…

- What needs to be measured
- Who is the audience/user
- How to keep track of details
- How often to take the data
- Who will do the tracking
- How to display it
- Where to locate the display
Thank You!

any??????