



Material Handling & Logistics
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**Modern Maintenance From Those
That Do**

Track 4 Session 3



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Abstract

The cross-functional dream team members that populate this panel are in the business of promising uptime. We will learn how to accommodate the changing requirements of automation and what makes up “best-in-class” ownership. Topics will include TPM, maintenance analytics, training, motivating, budgeting, and knowing when to upgrade. This is required reading for those who care for technology.



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Panel Discussion

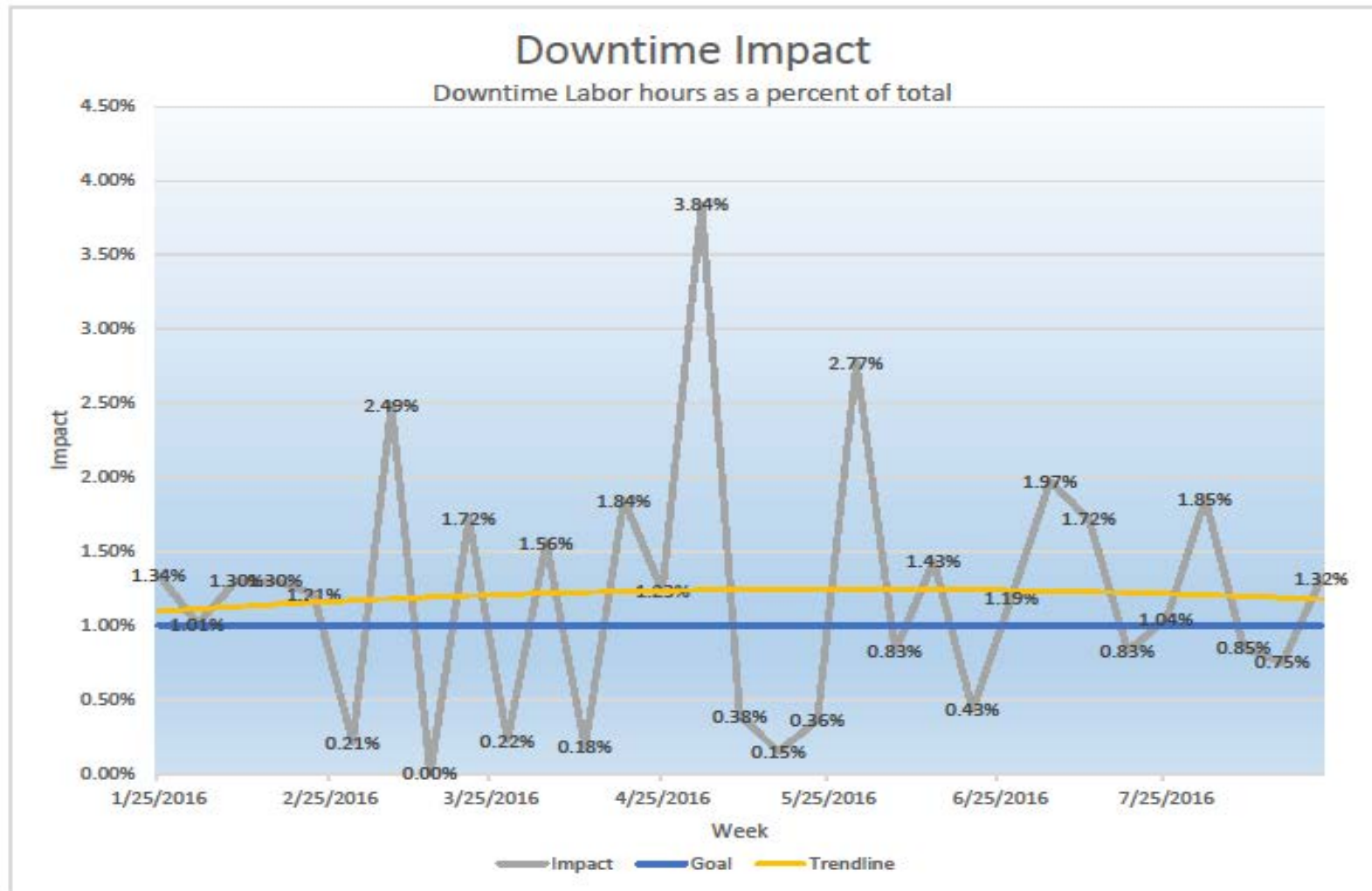
TPM (Total Productive Maintenance)

- **The Bid Idea – Getting operators involved in maintaining their own equipment, and emphasizing proactive and predictive maintenance will lay a foundation for improved production (fewer breakdowns, stops, and defects)**
- **WHAT IS TPM?**
 - TPM is a holistic approach to equipment maintenance that strives to achieve perfect production:
 - No Breakdown
 - No Small Stops or Slow Running
 - No Defects
 - No Accidents

Maintaining our Most Important Asset (People)

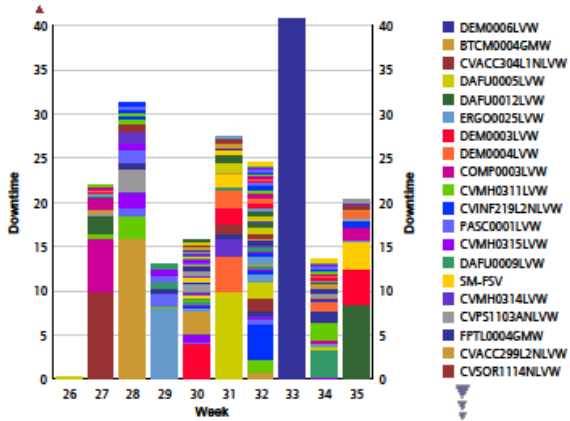
- 1. Using Maintenance Management Tools that allow maintenance partners to identify**
 - Purpose (daily throughput)
 - Impact (Downtime)
 - Solutions (RCA)
- 2. Using Tools with Operations to**
 - Validate work Effort
 - Focus Work Effort
 - Recognize Work Effort
- 3. Using Tools with Executives**
 - To show progress
 - Validate needs
 - Celebrate Accomplishments

Maintenance Analytics

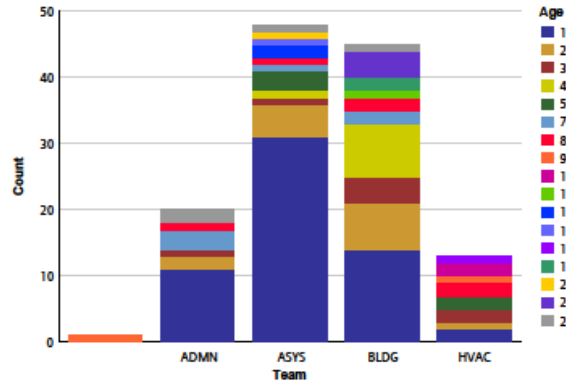


Maintenance Analytics

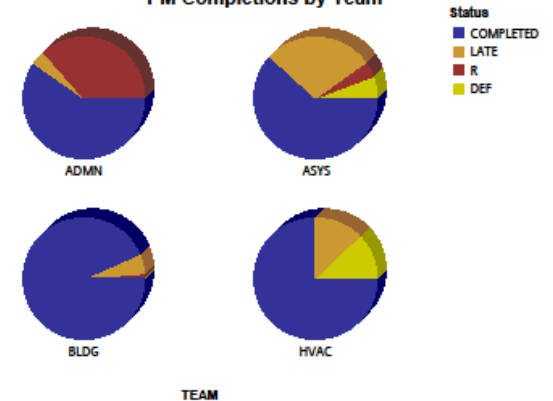
Maintenance Downtime



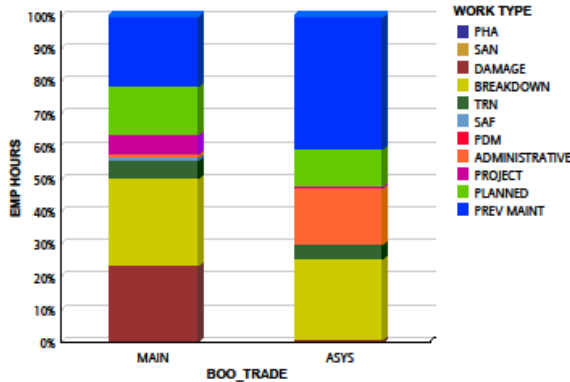
Backlog



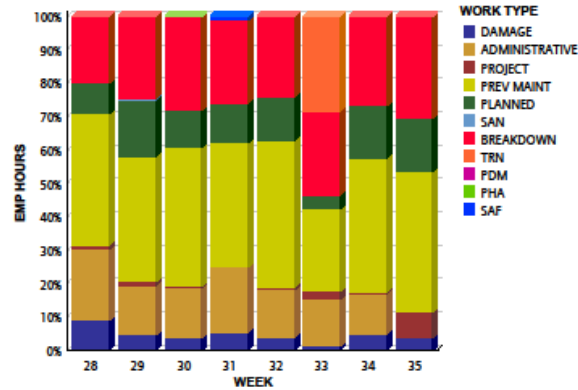
PM Completions by Team



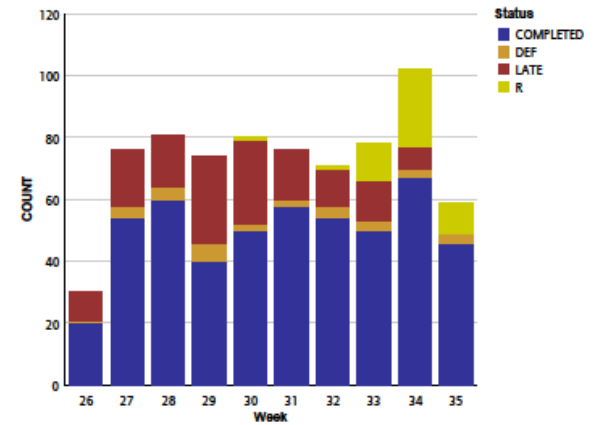
Work Order Distribution by Team



Work Order Distribution by Week



PM Completions by week





Training

- **The Department of Education funded a survey with the Bureau of Census to determine how training impacts productivity.**
- **The results of the survey are as follows:**
- **Increasing an individual's educational level by 10% increases productivity by 8.6%;**
- **Increasing an individual's work hours by 10% increases productivity by 6.0%.**
- **Increasing capital stock by 10% increases productivity by 3.2%.**

Maintenance Skill Facts

Let us face the facts about Maintenance Skills

1. Most companies do not have fully skilled maintenance personnel.
2. You cannot fire everyone that is incompetent.
3. Hiring skilled maintenance personnel is difficult.
4. Most repetitious equipment problems that cost companies billions of dollars a year are a direct result of skill deficiencies.
5. A person that feels competent is a better worker and is **motivated** easier.
6. Often maintenance personnel are disciplined because of skill deficiency, not because of a lack of concern or commitment.
7. People become frustrated or stressed when they do not know the proper way to do a specific task.
8. Companies spend millions of dollars a year on maintenance training without regard to the results expected from it or without a way of measuring results.

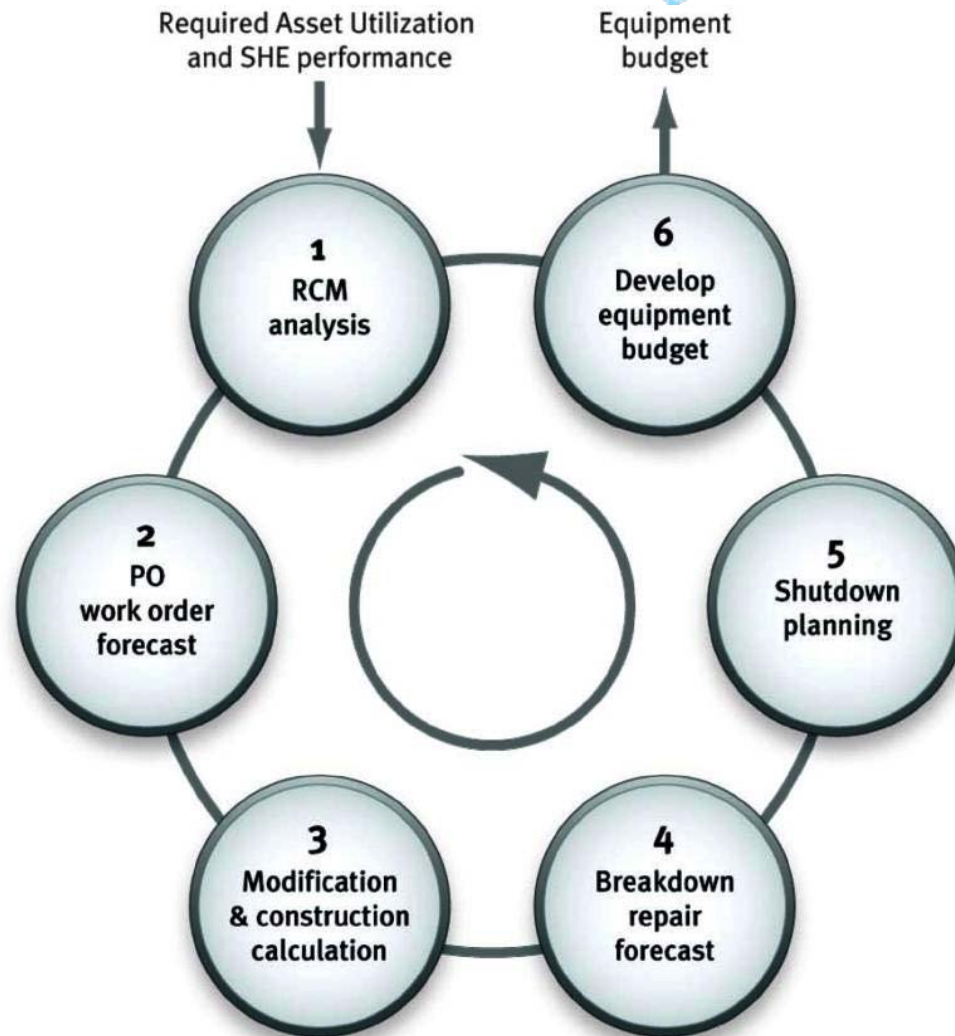
Motivating

Why the maintenance personnel gets de motivated ?

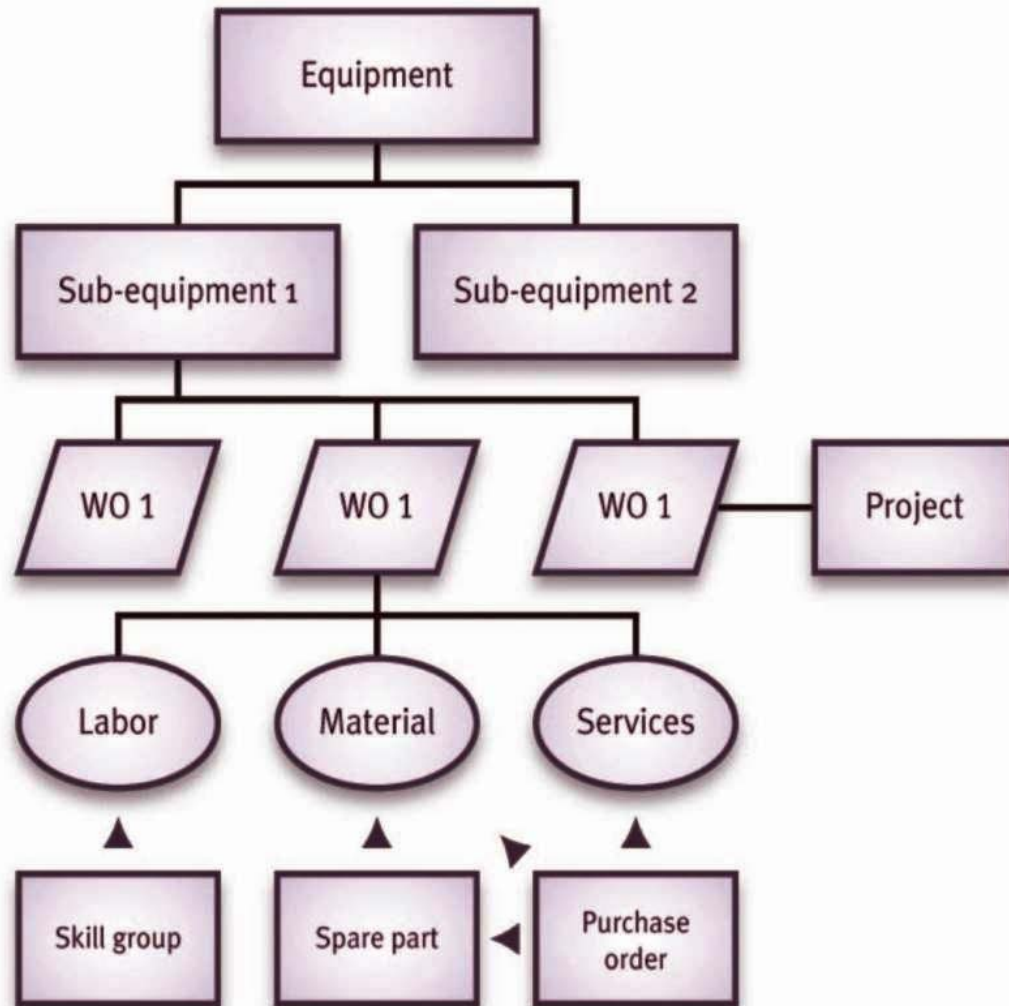
To motivate the maintenance personnel, we need to know why they get de motivated. Few points are listed below :

- 1. Non recognition of the efforts or appreciation not at par, with the sales or production teams.**
- 2. Non approval or delayed approvals of funds for investing in the equipment as the way invest in other activities.**
- 3. Bad/poor treatment from their customers like productions supervisors and others.**
- 4. Unwanted stress created during Maintenance and equipment failures.**
- 5. Non availability of spares due to inventory and other investment issues.**
- 6. Non availability of equipment for maintenance and demand for availability.**
- 7. Poor support from other departments like stores, procurement etc.**
- 8. No or less excess to the newer technology in the market**

Asset Based Budgeting



Types of Costs





Knowing When to Upgrade

- 1. Growing support costs**
- 2. Safety concerns**
- 3. New/changing Functions needed/required**

Cost

- 1. Obsolete Components**
 - a) Mechanical
 - b) Controls
 - c) Software Release no longer supported
- 2. High Spare Parts Turnover**
- 3. High Maintenance Costs**
- 4. Imminent Catastrophe**
- 5. Unsupported Fragile Software**



**Computer System
Upgrades**

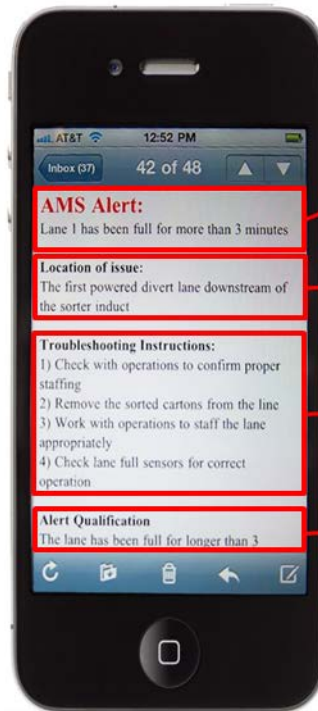


Safety

- 1. Changing Standards**
- 2. Equipment Decay**
- 3. Mechanical Instability**
- 4. Questionable Design**

Function

- 1) Load characteristics changed
- 2) New control interface required
- 3) Improved diagnostics desired
- 4) Additional cost reporting needed



What is the alert

Where's the alert's location

How to troubleshoot the alert

Why the alert was issued

Cloud Conference

Additional Resources

- **SIMAFORE – Analytics made accessible**
- **RELIABILITYWEB – A Culture of Reliability**
- **Need of Motivation for Maintenance Staff**
 - Sanjay B. Chari
- **TPM (Total Productive Maintenance)**
- **leanproduction.com**



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Questions?