
Equipment
Maintenance
Best
Practices
TORTILLA
TIA
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TECHNICAL
CONFERENCE

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The Maintenance Management Function Introduction

Facts

- Since 1979, maintenance costs have risen between 10% to 15% per year
- In the majority of maintenance organizations, craftsman spend as low as 2 hours per day performing hands-on maintenance
- Only 1/3 of all organizations employ a job planner
- The majority of all maintenance organizations are either dissatisfied with their work order system or do not have them
- Of the 1/3 of all companies that have a work order system, only 1/3 track(10% of all companies) track backlog

Facts

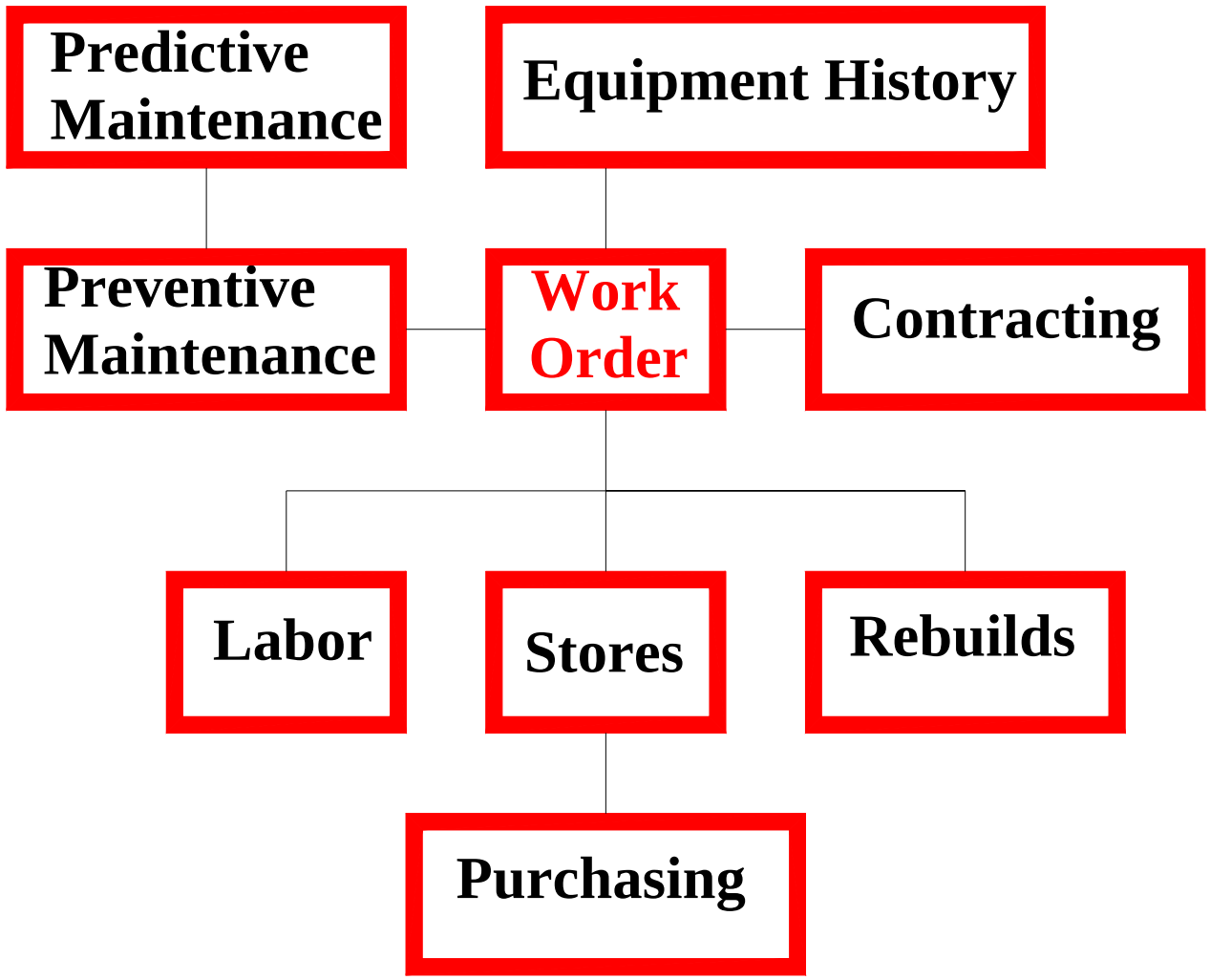
- Only about 10% of all organization have some form of performance monitoring
- About 10% of all companies perform failure analysis
- Overtime averages about 14.1% , 3 times higher than what it should be
- Preventive maintenance satisfies the needs of about 22% of companies surveyed
- The cost of lost production may range from 2 to 15 times the cost of maintenance repair

Reference: Terry Wireman, Benchmarking Best Practices in Maintenance Management, Industrial Press Inc., New York, NY, 2004.

Maintenance Strategy Determination

Maintenance Types

- Emergency Maintenance - Unplanned
- Preventive Maintenance
- Routine Maintenance
- Predictive Maintenance
- Corrective Maintenance



SCHEDULING FLOW CHART

Performance Measurement

You can't manage what you don't measure

- **Maintenance is often organized and performed without proper measures to determine it's impact on the business's success**
- **You need:**
  - **consistent and reliable data**
  - **high quality analysis**
  - **clear presentation of the information**

Performance Measurement

Equipment

- Overall Equipment Effectiveness
- Reliability
- Maintainability
- Mean Time Between Failure - MTBF
- Costs for each asset center
- Return on investment- ROI

Computer Maintenance Management System

What are your real needs?

- Most companies don’t have the resources and the commitment to implement the system
- Requires training
- It must be maintained daily
- Poor utilization of the system is quite the norm.
- Only 5 to 30 % utilization

Good Maintenance Management

Principles

- Maintenance is recognized by management as an integrated part of production

- Preventive Maintenance (PM) is the key to any attempt to improve the maintenance process
- Continuous improvement programs are in place

Good Maintenance Management

Principles

- There is a commitment to improve the ratio of planned versus unplanned work
- There is an emphasis on training
- Operators are involved in the maintenance of their own equipment

Good Maintenance Management

Principles

- People
  - more efficient operation
  - balance of workloads
  - reduce overtime
  - increase cooperation between production and maintenance departments
- Spare parts
  - lower inventory levels
  - lower usage

Good Maintenance Management

Principles

- Continuous improvement programs are in place :
  - performance is evaluated
  - reasons for downtime are analyzed
  - corrective actions are taken
  - progress is measured

Good Maintenance Management

Benefits

- Equipment:
  - downtime reduction
  - smoother running
  - reduced waste
  - higher return on investment(ROI)
  - increased equipment life
  - repair history available

Good Maintenance Management

Best Practices

- Preventive Maintenance
- Inventory and Procurement
- Work Flow and Controls
- Computer Maintenance Management System
- Technical and Interpersonal Training
- Operational Involvement
- Predictive Maintenance
- Reliability Centered Maintenance
- Total Productive Maintenance
- Financial Optimization
- Continuous Improvement