



# **Selling the Maintenance and Reliability Business**

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# To Make Financial Improvement

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- We must identify the process results we want to measure that will accurately predict our business performance
- The whole organization must focus on these key process results... ***this requires focused leadership***
  - Core Business Process
  - Core Competency
- Once the processes are identified, we must measure their performance to insure improvement

# What is a “Core Business Process”?

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- **Key business processes represent core functional efforts and are usually characterized by transactions that directly or indirectly influence the external customer’s perception of the company.**
  - Procure and Support Capital Equipment
  - Manage and Support Facilities

The Benchmarking Workbook - G. Hines - 1992

# Core Competencies

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- **Core Competencies should impact business measures:**
  - Return on Net Assets
  - Customer Satisfaction
  - Revenue per Employee
  - Quality
  - Asset Utilization
  - Capacity

The Benchmarking Management Guide - APQC - 1993

# Core Competencies

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- **Core Competencies:**
  - Key Business outputs or processes through which an organization distinguishes itself positively
  - Distinctive - A strength that sets an organization apart from its competition
  - Examples are expert maintenance, low operating costs, and cross-trained labor

Operations Management - R. Schonberger - 1997



# What is the Purpose of Maintenance?

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~~To fix stuff~~



To have the resources and assets available to produce at their designed capacity and efficiency.



Who is the “Real Customer” for maintenance within any organization?

# The Customer for the Maintenance is: ...The Company Shareholders

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If you don't believe this, try to sell your plant.

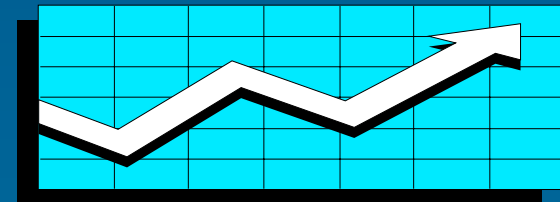
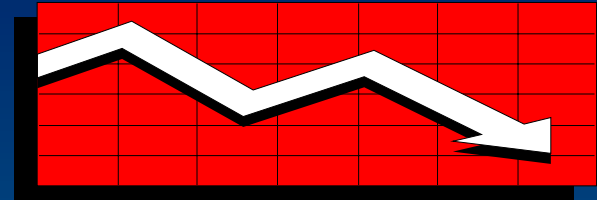
What will you sell?

The Plant Assets.

What is the condition of the assets?

Would anyone want to purchase your assets, or are they so worn out and deteriorated that they have no marketable value?

What is the "Real" value of maintenance?



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  - Core Business Process
  - Core Competency
- Once the processes are identified, we must measure their performance to insure improvement... **for existing organizations this requires change**

# Change Process & Continuous Improvement



# Performance Improvement

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- **Select Best (Better) Practices and change or eliminate inferior practices or policies**
- **Leaders must set clear direction - focused on company vision and tied back to business goals**
- **Navigational tools are called **Key Performance Indicators (KPI's)****
  - Performance Indicators vs. Benchmarks
  - Short Term vs. Long Term
- **Any changes should either strengthen Best Practices or eliminate poor practices**



# Traditional KPI's

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- **Financial Based**
  - Balance Sheets, Monthly Profit and Loss Statements, and ROI's
- **Damage Reports**
  - Telling us that we performed poorly, after the fact
- **Nothing about today or tomorrow**

# Traditional KPI's

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- Lagging Indicators - Not leading indicators
- Financial - not Functional
- Do not highlight methods of improvement



# The right KPI's Depends on Perspective

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- **Not a Necessary Evil**
- **In reality, a competitive weapon**
  - Reducing Costs
  - Increased Capacity
  - Improved Profit Margin
  - Increased Shareholder Value
- **Focus strategies and actions on how to improve not just what measure**

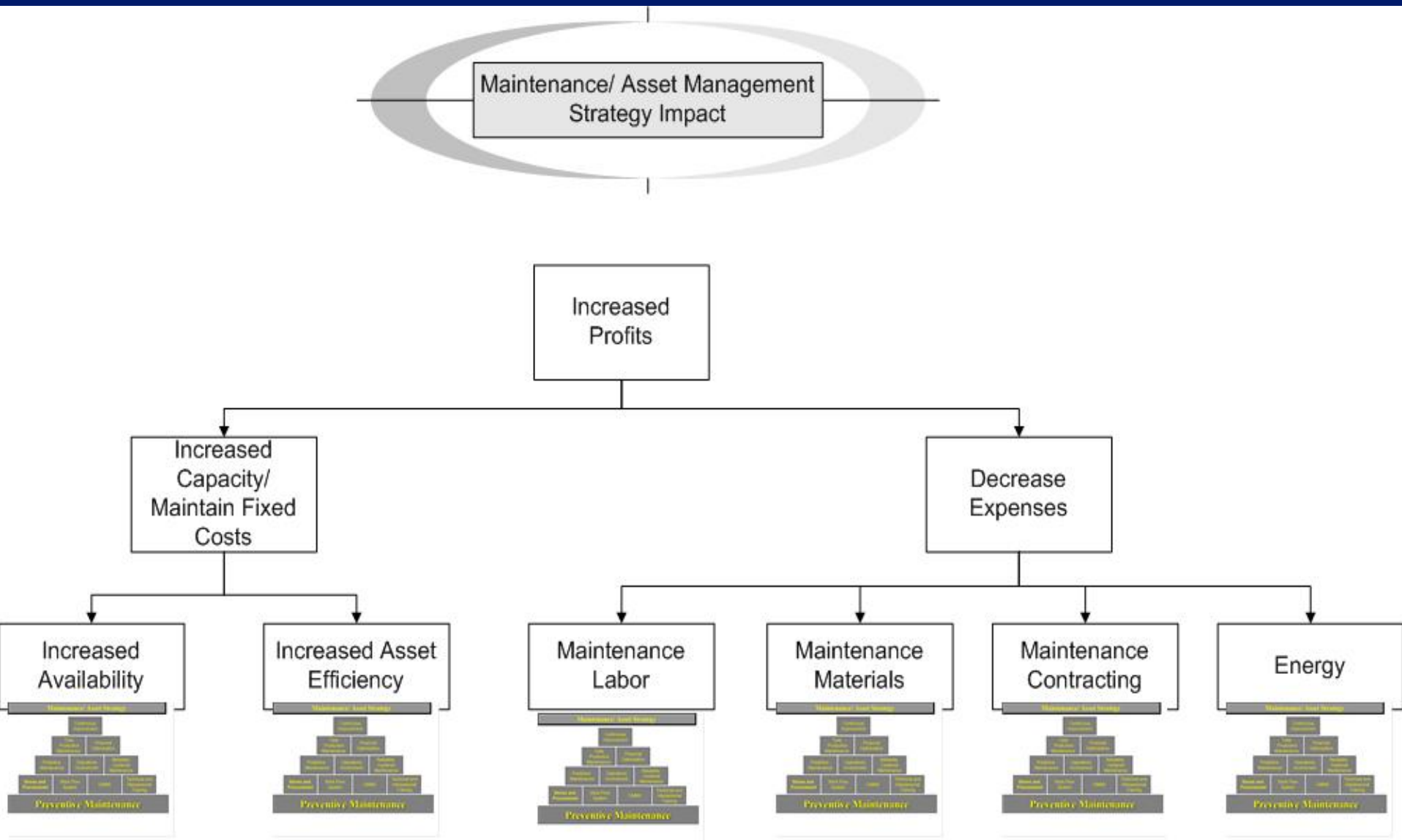


# Perspective...

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- Why do we have a maintenance organization?
- Why is Maintenance – EAM important?
- This business function provides assurance that the company's assets perform as designed.
- Sometimes our assets don't always perform as designed.
- Do you appreciate the value maintenance and asset deliver to your customer's organization??
- Do your customers appreciate the value of your maintenance and reliability strategy delivers... this could be a differentiator??

# How To Make Financial Improvement



# How To Make Financial Improvement

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Profit = **Selling Price** - **Cost**

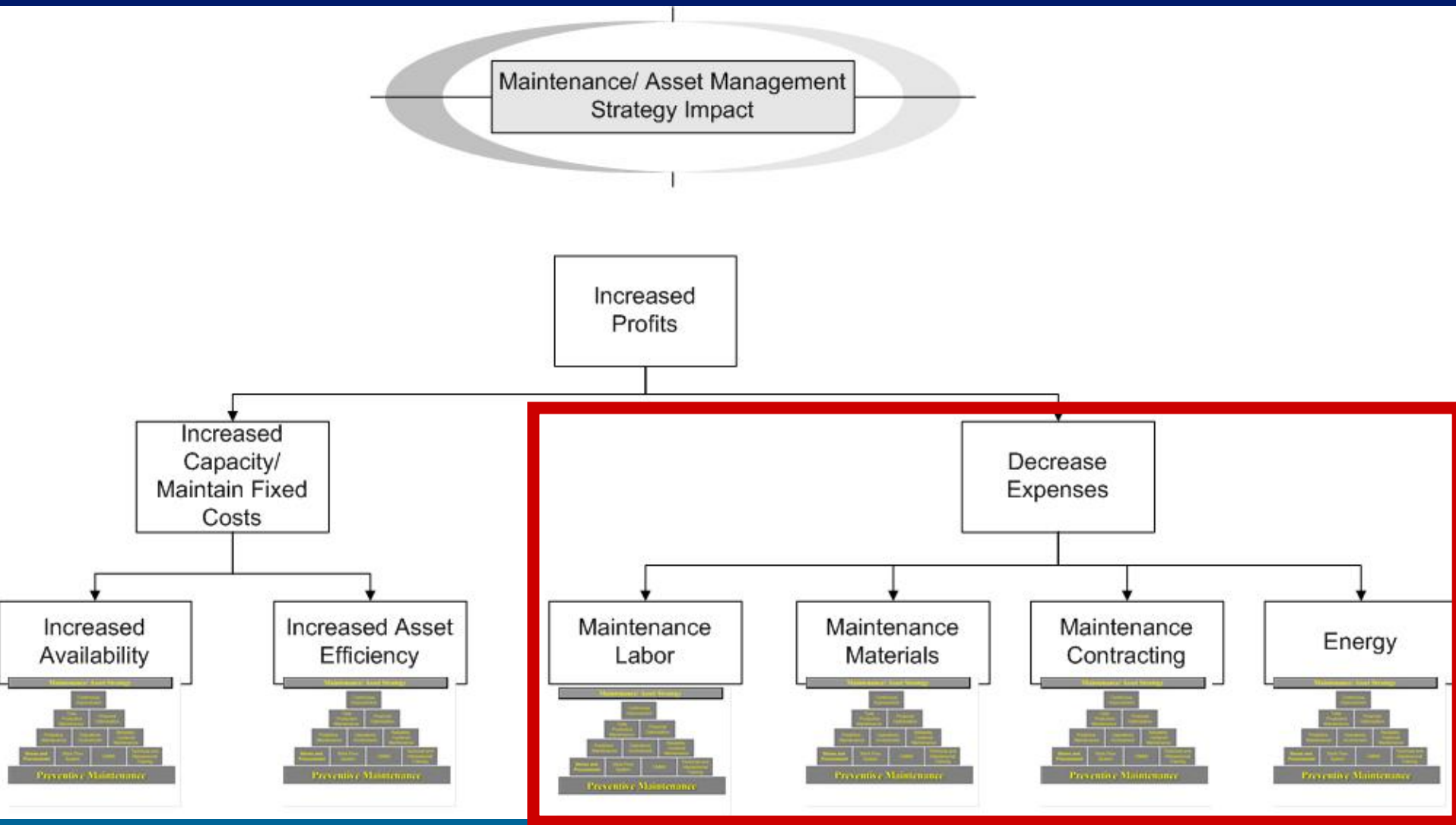
**Mfg. Cost + Sales Mkt. Cost**

## *Pulp & Paper Industry (Typical cost distribution)*

**Variable Costs (49%)-** Raw & Operating Material 27%  
Chemicals & Packing 9%  
Energy 13%

**Fixed Costs (25%)-** Maintenance Materials 7%  
Personnel & Admin. 14%  
Other 4%

**Capital Cost (26%)-** Improvements



# Areas of Savings:

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- Maintenance Focus
  - Labor Productivity
  - Stores - Materials
- Equipment Uptime Focus
- EAM Focus

# Maintenance vs. Sales

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- To add \$1M in profits to the corporate bottom line - Is it easier to reduce maintenance expenditures or increase sales?

- If profit is 5% of total sales, sales would have to increase \$20M to produce the additional profit.
- How much effort would it take to reduce maintenance expenditures by \$1M



**Which is easier??**

# Waste in Maintenance??

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- **Maintenance Focus**
  - Labor Productivity
  - Stores - Materials
- **Equipment Uptime Focus**
- **EAM Focus**

# Not Downsizing - -

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- Not reducing the size of the maintenance work force , but rather the removal of waste from the maintenance process...



# LABOR PRODUCTIVITY LOSSES

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**Waiting for instructions**



**Looking for supervisors**



**Checking out the job**



**Multiple trips to the stores**



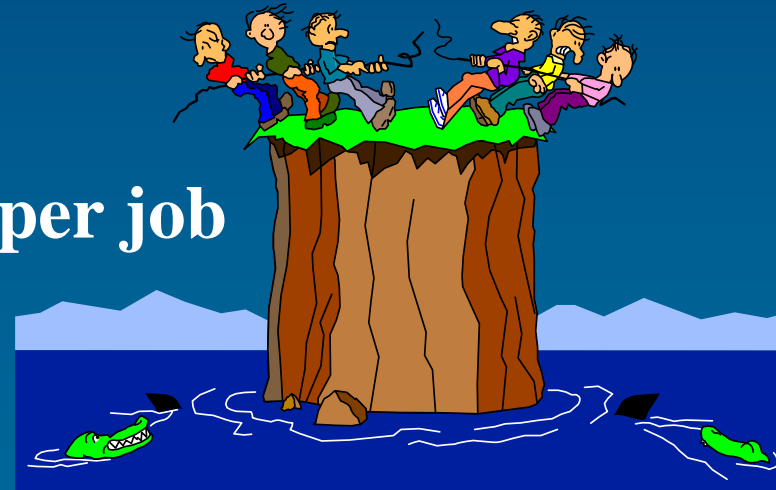
**No special tools**



**Waiting for approval**



**Too many technicians per job**



# PRODUCTIVITY SAVINGS TYPICAL EXAMPLE

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## Reactive

100 MAINT EMP  
X 2000 Hours/year

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200,000 hours paid for  
x 30% Productivity

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60,000 hours -

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Difference of 60,000  
additional hours

## Best Practice

100 MAINT EMP  
X 2000 Hours/year

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200,000 hours paid for  
x 60% productivity

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120,000 hours-

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Difference in dollars  
60,000 x \$20.00=  
Potential of \$1.2 mil

# What Functions in Maintenance Help Remove Waste??

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- Preventive Maintenance
- Controlled Stores
- Planning
- Scheduling
- Backlog Control



# Waste in Maintenance??

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- Labor Productivity
- Stores - Materials

# Material Related Waste

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- Waiting on Materials
- Travel time to obtain materials
- Time to transport materials to job site
- Time to identify untagged materials
- Time to find substitute materials
- Time to find parts in remote/ alternative locations
- Time to obtain Purchase Order approvals
- Cost of processing Purchase Order
- Time lost due to:
  - **Other crafts having material problems**
  - **Wrong materials planned, ordered, or delivered**
  - **Materials out of stock**

**Can these be reduced/ eliminated?**

# Typical EAM Inventory and Purchasing Savings:

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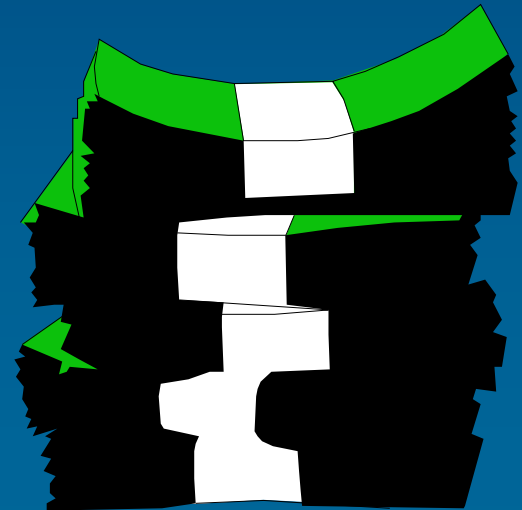
- **Industry Week:**
  - 17.8% Reduction in Total Inventory Levels
  - 19.4% Lower Material Cost
- **For a Company with \$10M annual inventory costs, the savings could approach \$2M.**



In addition to these Savings, Business Process Improvements supported by maintenance would include:

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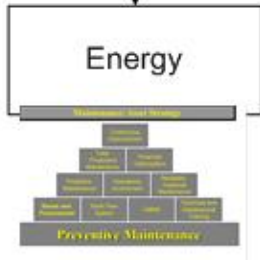
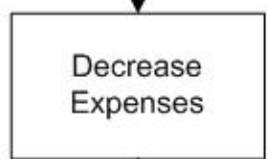
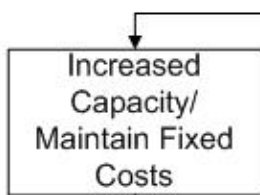
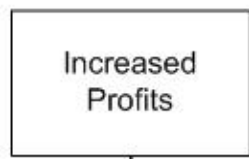
- **Energy Cost Savings (5-11%)**
  - Mechanical
  - Electrical
  - Steam
  - Fluid Power
- **Capital Equipment Savings (40% +)**
- **Warranty Savings (6%)**
- **Quality Savings (50%)**



# Areas of Savings:

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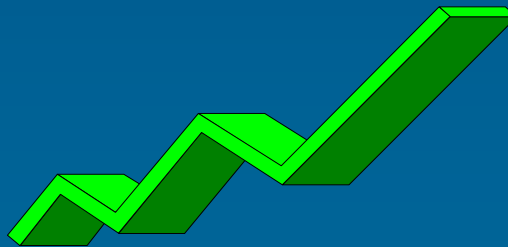
- **Maintenance Focus**
- **Equipment Uptime Focus**
- **EAM Focus**



# Lost Production

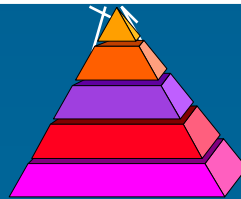
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- Lost Production Costs Incurred During an Equipment Breakdown Average 4:1.
- The Plant Engineering survey showed a range of 2:1 for the low to 14:1 for the high.  
( $\$1$  spent for repair =  $\$4$  in lost production)
- You must know - The value of 1 hour of lost production or availability and the hours equipment was down last year.



If you Don't know what Poor Maintenance Costs..  
How would you know how much you could  
save by investing in Good Maintenance??

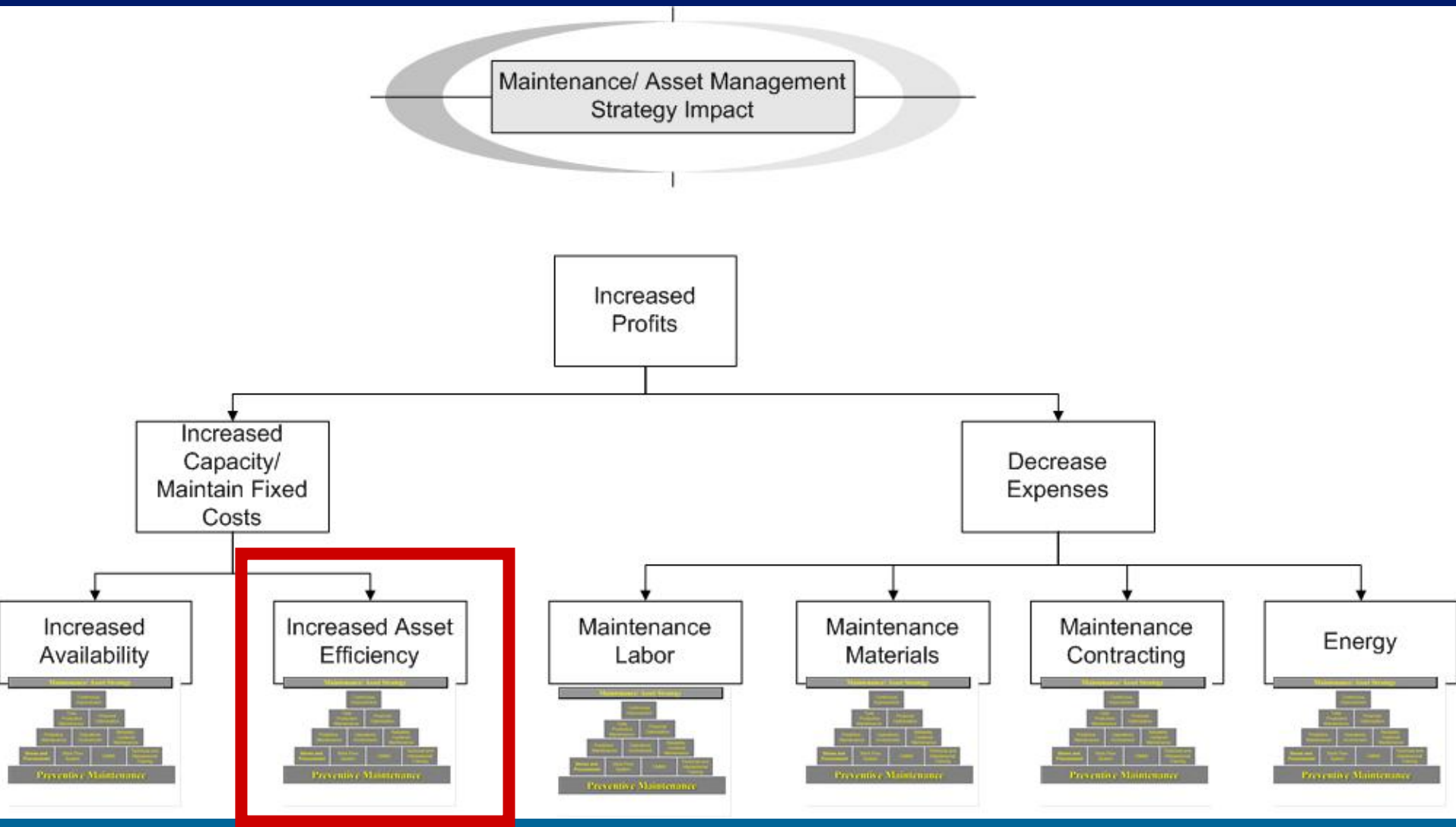
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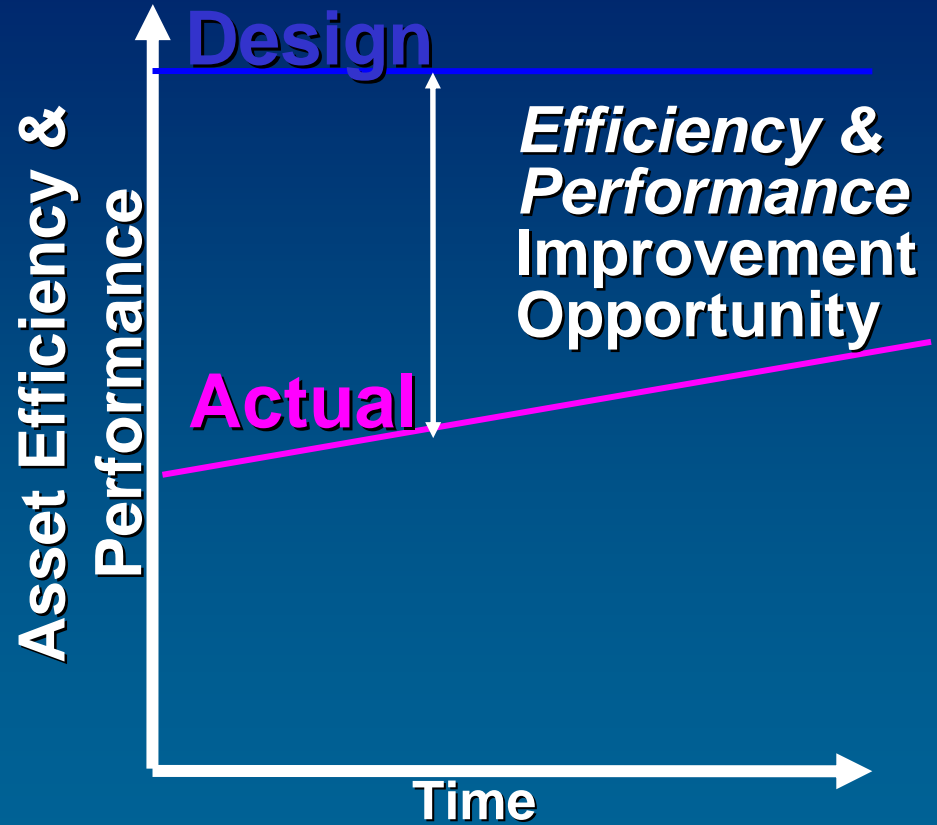
# Areas of Savings:

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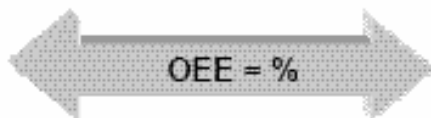
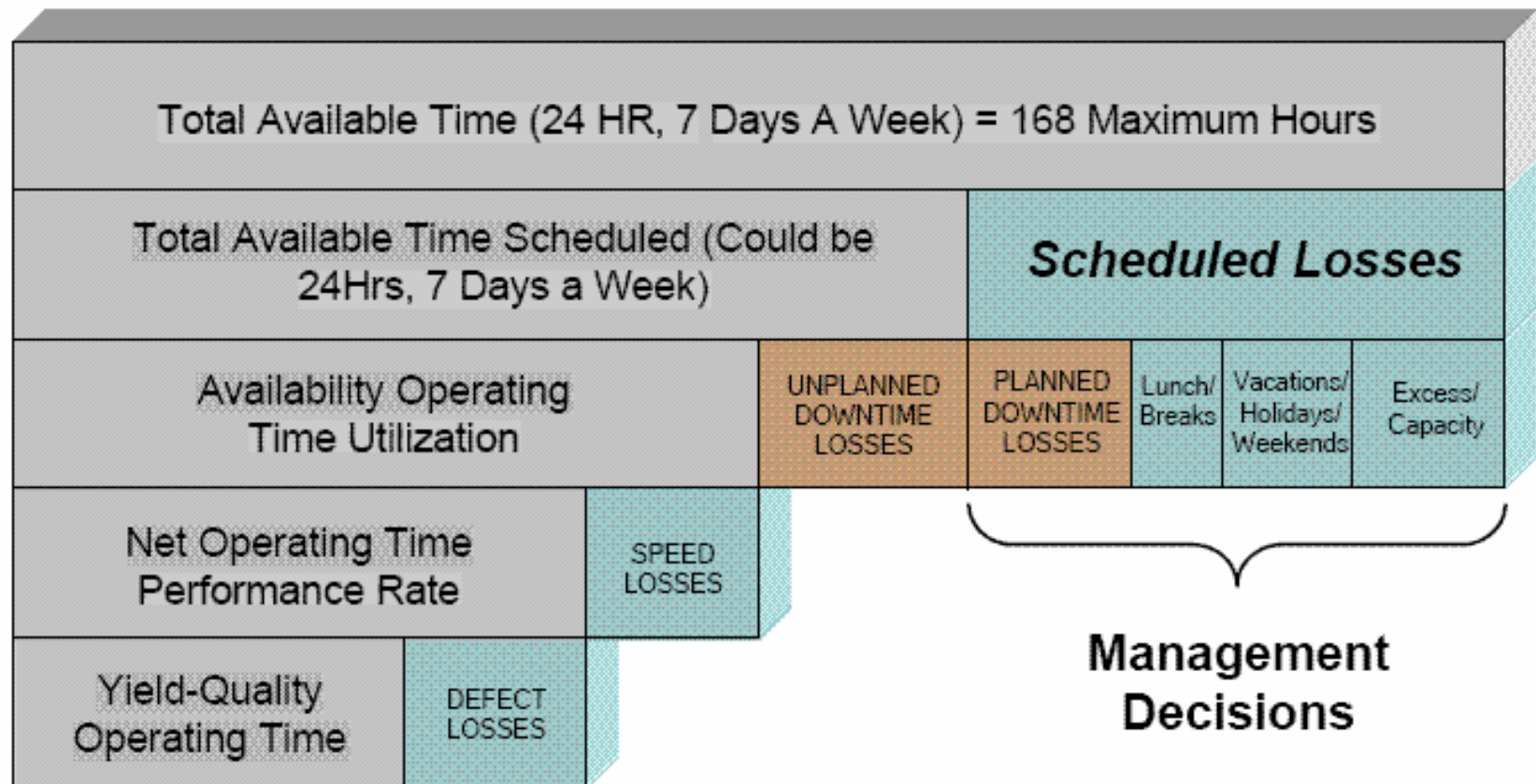
- Maintenance Focus
- Equipment Uptime Focus
- EAM Focus



# Delivering Profit and Results



# Overall Equipment Effectiveness (OEE)



**Benchmark is 85% (Discrete) - 95% (Continuous)**

Overall Equipment Effectiveness = Availability \* Performance Rate \* Quality Rate  
 $OEE = 60\% * 75\% * 98\% = 44\%$

# O.E.E. Summary

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- **O.E.E. is an effective measure of equipment/ asset performance**
- **“Dollarizing” the results can gain Senior Management support for improvements.**
- **The benefits are documented from almost every country in the world?**

# Summary... There is money to be made!

## EAM, ROI & PM

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- **Builds on the Basics of Maintenance**
  - You can't do anything without data
- **Increases Equipment Availability**
  - Uptime is primary focus
- **EAM Assures Competitiveness**
  - Focuses on Maximizing Assets in Capacity and Financials

**Maintenance is a profit center!**

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Questions??