Importance of Maintenance and Asset Management

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The Need for Best Practice?

- Innovation in the business world as business goals of organizations are changing rapidly.
- Industrial companies must re-invent themselves continually.
- Global competition and ever increasing pressure on cost.
Importance of Maintenance and Asset Management

Consider the demands that these changes place on maintenance and engineering:

- 10 defects in a million
- Customer delivery times cut by 80%
- Product range increased from 10 to 100
- Production plan changed from 18 hour/day to 24 hour/day
Importance of Maintenance and Asset Management

Total Productive Maintenance

- An all encompassing philosophy.
- Originally developed by the Japanese from preventive maintenance strategies used in the United States over 30 years ago.
- Firmly used in many world class companies.
Importance of Maintenance and Asset Management

Total Productive Maintenance
The Development Stages

- Breakdown Maintenance – pre 1950s
- Preventive Maintenance – 1950s
- Productive Maintenance – 1960s
- Total Productive Maintenance – 1970s
What are the aims of TPM

- To maximize the effectiveness of all production equipment.
- The use of the team approach – Small Group Working
- To involve all departments that plan, use or maintain equipment.
- The TOTAL involvement of everyone, from top management to all employees
- The implementation of a comprehensive maintenance program for all equipment throughout its life cycle
Importance of Maintenance and Asset Management

The main AIM
“The Concept of Zero”

- Zero Accidents
- Zero Quality Defects
- Zero Breakdowns
- Zero Waste
Importance of Maintenance and Asset Management

Total Productive Maintenance
How it fits with Continuous Improvement

- Continuous Improvement
- Quality Improvements
- People Development
- Controlling the Process
- Equipment Availability
- Efficient Production

TPM
Total Productive Maintenance

TPM is not solely concerned with maintenance or production or support functions. Production, maintenance and all support functions become part of an integrated team. It challenges people to change the way they have been working from a highly structured environment to a challenging “can do better” way of thinking.
The Five Pillars of TPM

- Improving Overall Equipment Effectiveness (OEE).
- Training
- Small Group Activities
- The Implementation of Planned Maintenance
- Early Equipment Management
Importance of Maintenance and Asset Management

Training for TPM

• Training for all personnel is vital if TPM is to succeed.
• Training should be oriented towards TPM principles of;
  - Achieving the Concept of Zero
  - How to organize and correct equipment abnormalities
  - Autonomous maintenance activities by operators

• Specific training activities could include:
  - General inspection techniques
  - Tailor made in-house maintenance technician training
  - Condition based maintenance techniques
  - Team working skills
## Importance of Maintenance and Asset Management

### The Need for Best Practice – Asset Management Challenges

<table>
<thead>
<tr>
<th>Business Challenges and Objectives</th>
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Importance of Maintenance and Asset Management

Case Study – Motor Company

In 2003, Siame motors 173,000 employees made and sold 6,800,000 vehicles resulting in sales income of US$ 119 billion. Equipment capital value is US$ 43 billion.

Siame Motors provide clear organizational leadership through documented processes. This sets out the **overall blueprint** for the company. Details of the latest **objectives** are conveyed to all the employees on notice boards and via the company website.
Importance of Maintenance and Asset Management

The Company’s vision is to provide superior Shareholder returns.

The strategy for achieving this is shown as a pyramid, with Customer Focus as the foundation.
The Role of Maintenance and Asset Management in enabling Siame Motors Goals – Consider the Goals defined for the business

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<tr>
<th>Goal</th>
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<tr>
<td>Strong Global Brands</td>
<td>Production of each model concentrated in 2-3 regional plants</td>
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<td>Superior Customer Satisfaction &amp; Loyalty</td>
<td>Need to respond to customer demands. Highest quality standards required. High Reliability</td>
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<td>Best total Value of the Customer</td>
<td>Reducing Costs. Improved Return on Investment</td>
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The Role of Maintenance and Asset Management in enabling Siame Motors Goals – Consider the Goals defined for the business

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<td>Strong Global Brands</td>
<td>Production of each model concentrated in 2-3 regional plants</td>
<td><em>Need to share maintenance info across all plants with similar manufacturing equipment. Need to create optimum global stores policy for critical spares</em></td>
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<tr>
<td>Superior Customer Satisfaction &amp; Loyalty</td>
<td>Need to respond to customer demands. Highest quality standards required. High Reliability</td>
<td><em>Quick decision making, flexible staffing, ability to think and change. Empower operators with continual quality improvement (TPM, SPC), effective equipment commissioning, reliability and maintainability programs</em></td>
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<td>Best total Value of the Customer</td>
<td>Reducing Costs. Improved Return on Investment</td>
<td><em>Maximize equipment uptime, minimize maintenance costs, effective equipment commissioning, reliability and maintainability program, Life Cycle Costing</em></td>
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<td>Corporate Citizenship</td>
<td>Better use of world environment. Reduce pollution &amp; energy consumption</td>
<td><em>Reduced wastage of lubricants, cutting fluids, air leaks etc. Ensure equipment is in highest condition to reduce energy consumption</em></td>
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Typical Asset Management Challenges

- Reduce Spares stockholding
- Establish plant criticality to prioritize allocation of resources
- Introduce multi-skilling
- Introduce supplier partnership
- Maximize energy efficiency
- Reduce plant shutdown (turnaround) days/year
- Develop KPI’s and communicate to all personnel
- Reduce Maintenance costs per unit of product
- Improve plant hygiene and housekeeping
- Establish Life cycle costing as the basis for equipment procurement
## Relationship Between Business and Asset Management Challenges

<table>
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<tr>
<th>Business Challenges</th>
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## Relationship Between Business and Asset Management Challenges

<table>
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<tr>
<th>BC</th>
<th>Production Line</th>
<th>Maximum Production</th>
<th>Maintenance New IT</th>
<th>Reduce Spares</th>
<th>Out Source</th>
<th>Totals</th>
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<td>World Brand</td>
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<td>Profit &gt;20%</td>
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<td>50% Market Share</td>
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Importance of Maintenance and Asset Management

This process provides a clear link between the Maintenance and Asset Management challenges and the Business challenges which provides two important benefits:

- Executive management can see clearly how improvement in Maintenance and Assets Management will help them to achieve the business aims.
- Maintenance staff can see how improvements that they create can benefit the business as a whole.
CONCLUSION

Maintenance and Asset Managers have to contend with numerous challenges for the successful maintenance of plant equipment and facilities. The processes involved entails numerous activities that include:

• Maintenance Planning, Scheduling and dispatch, Sophisticated equipment analysis, Efficient labor utilization, Outsourcing contracts and vendor management to name but a few.

Consequently, a holistic approach to maintenance and Asset Management is needed in order to maximize asset productive lifecycles and minimize total cost of ownership. In addition an inherent methodology for continuous improvement of reliability within the realm of Maintenance and Asset Management is needed to achieve significant ROI.

“THE NEED FOR EMPOWERMENT LIES IN TRAINING’