

## Maintenance Effectiveness

One of the more overlooked components to operational excellence in large asset-intensive companies is the efficiency of their maintenance operations. In fact, over the past several decades, few operations management disciplines have changed as much or become as important, particularly as equipment continues to age.

Companies that are equipment-dependent, such as air carriers or companies in complex industries for which delays and down time equal cost increases and revenue decreases, know the impact of maintenance. Equipment availability and its exploitation are dependent upon maintenance, as is the safety and quality of products and services.

Many manufacturing managers feel that maintenance is not contributing appropriately in the support of production objectives. They know improvements in maintenance effectiveness can impact many aspects of business performance that drive economic value creation and shareholder returns.

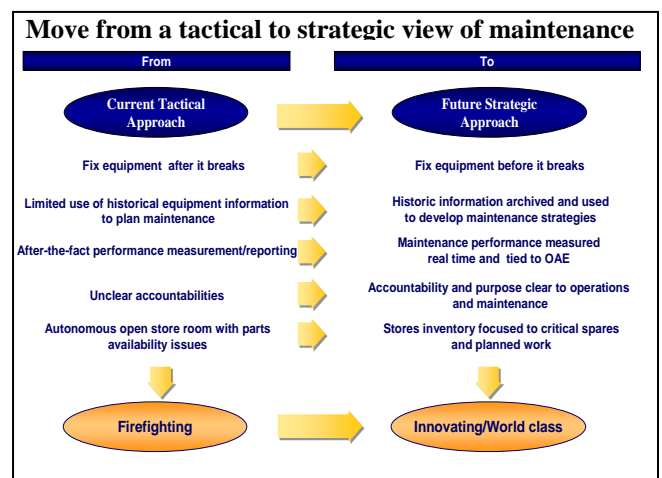
Fortunately, maintenance effectiveness can usually be achieved through process-based improvement, even in technical manufacturing environments. Lean concepts of work and waste apply just as well within maintenance as any other part of a business. Plant capacities, process yields, productivity and customer service can all be dramatically raised through team-based problem-solving.

### The Approach to Maintenance is Critical

Typically, companies have taken one of two approaches to equipment care:

1. Over investment in maintenance technologies, capabilities, and personnel
2. Focus on cost reduction with little regard for the potential capacity reducing impacts

An effective maintenance strategy applies scarce resources where they can provide the most leverage in delivering high capacity at the lowest total cost. Few companies, however, have enjoyed the step changes in performance resulting from world-class preventive, predictive and precision maintenance.



Before undertaking maintenance improvement initiatives on an enterprise-wide scale, it is first important to understand and accept that maintenance is an investment that should be optimized, not a cost that should to be minimized. It is a process for bringing more profit, not one for saving money. Immediate savings in the maintenance function could lead later to huge human and material losses.

Underperforming companies consider maintenance a process to be activated only when something unexpected happens. Unfortunately, when operators first notice signs of equipment problems, it is usually too late. The costs associated with lost capacity often dwarf maintenance department expenses. Optimized companies balance key maintenance cost components and drive to the minimum cost.

## Maintenance Effectiveness at Thomas Group

At Thomas Group, we believe the ultimate goal of maintenance is to provide maximum useful capacity at the lowest possible cost throughout the entire production system, and that to achieve significant improvements in maintenance, effectiveness companies must move from a tactical to strategic view.

Our maintenance offering adds significant value to your operation by:

- Reducing operating expenses:
  - Maintenance labor expenses
  - Maintenance material expenses
- Improving operations reliability and consistency
- Increasing production output level by
  - Minimizing downtime
  - Increasing production throughput levels
  - Reducing acceptance loss (product First Pass Yield)
- Extending the life and postponing the replacement of your asset base

## Five-Step Process

Our approach follows a structured five-step process to achieve the primary objective of an effective maintenance program. The approach focuses on the key drivers that deliver significant value to our clients.

1. Develop an effective maintenance and reliability strategy consisting of four major components
  - Equipment Segregation
  - Equipment Impact
  - Opportunity Definition
  - Equipment Specific Strategies
2. Focus on the disciplined application of root cause failure analysis (RCFA) to make step-changes in equipment and process performance
  - RCFA is used to shift maintenance efforts from *firefighting* to long-term improvement

3. Implement the appropriate preventive (PM) and predictive maintenance (PdM) programs, driven by the maintenance strategy and intensity matrix
  - Understanding the failure pattern of the equipment is essential in determining the specific PM and PdM approaches to apply
4. Address each key element of the maintenance planning and scheduling process
  - The role of planning and implementation is as important in maintenance as it is in the rest of the business
  - Sound planning and scheduling practices are essential in order to maximize effective utilization of the limited but available maintenance hours
5. Performance measurement, feedback, and renewal with continuous improvement as the primary focus
  - Strategic direction is reinforced through a set of interlocking key performance indicators (KPIs)
  - KPIs are then instilled into the organization to ensure that maintenance *savings* are retained

## The Thomas Group Approach: Results

The maintenance effectiveness framework is focused on delivering rapid and sustainable results. Our implementation program focuses on rapidly driving and sustaining maintenance improvement benefits at the plant level. All of the key maintenance performance drivers are addressed by our equipment specific approach to maintenance. Thomas Group also assists with the critical and expensive operating process of planned shutdowns and develops a maintenance outsourcing strategy.

The implementation of a strong continuous improvement process is key to sustaining the benefits of a maintenance effectiveness program. 