Business Based Maintenance

The way to maintenance effectiveness

by Brad McCully, Advanced Technology Services

Over the course of the last decade, competitive pressures have driven the manufacturing industry to implement dramatic changes. Improvement strategies such as Just-in-time, Lean Manufacturing, and others have been implemented with very positive results. The goal of every plant is to manufacture its product better, faster, cheaper and the pressure to improve is increasing. Recently the challenges of improvement have made their way to the indirect support functions, including production maintenance.

Over the last ten years, I have had the opportunity to visit hundreds of manufacturing plants in an effort to help them improve maintenance effectiveness. In almost every case, the manufacturing manager responsible for overall plant performance requested the help. The manufacturing strategies being used, coupled with new technology, has placed the need for maintenance effectiveness clearly on the radar screen of many manufacturing business professionals. The demands being placed on maintenance are considerable and are escalating constantly.

Many manufacturing managers feel that maintenance is not contributing appropriately in the support of production goals. And because these manufacturing managers don't really know how to successfully improve maintenance, their mindset is to limit maintenance costs by cutting expenditures, therefore striving to minimize the negative impact maintenance costs have on plant performance. They usually have unanswered questions regarding how many maintenance personnel should be on staff, how to improve the maintenance staff's level of technical effectiveness, and how they should go about lowering maintenance cost. Maintenance is generally viewed as a poor performing cost center.

Conversely, in conversations with maintenance leadership in those same plants, their story is usually about having to do more with fewer resources. The story tends to be about the inability to execute maintenance in a proper manner. They feel that, "if production would just listen to us we could perform effective maintenance." The real issue with these feelings is that effective maintenance is rarely described in terms of financial impact on plant performance. Maintenance is unable to articulate how effective maintenance will make production goals a reality. The result is a significant level of conflict between manufacturing and maintenance.

Manufacturing people repeatedly communicate a need for improved maintenance, while maintenance managers complain about the lack of funds, the lack of access to equipment in order to perform maintenance, and an overall lack of manufacturing cooperation. It is obvious the production and maintenance agendas don't match up. What's missing is a way to get the two groups working together for a common purpose. A common language is required to get production and maintenance working together toward improving plant performance. The answer? *Manage maintenance as a business.*

Business Elements

Certainly the language of business is financial in nature. However, to operate maintenance as a business, there are other key elements that must be considered. Businesses have customers, written business plans, performance indicators, and business performance reviews that foster continuous improvement. These are the very issue that maintenance organizations must understand if they are to run an effective business. Once these business elements play an active role in managing maintenance, the "best guess" or "loudest opinion rules" method of management is replaced with a fact-based decision making process. Let's take a closer look at

these elements and how they might improve the way maintenance contributes to plant performance.

Customers

In any successful business, the most important task is to discover a need or requirement of a customer or market that the business can satisfy. The fact that customers are the reason a business exists is a difficult concept for many maintenance people to grasp. In the case of maintenance departments, the customer is production. Production personnel have their hands on the pulse of the plant's revenue stream. If they cannot perform their duties effectively, the plant doesn't make money. Plant profitability is really what both groups should be striving toward.

It was once stated "you either serve the customer or serve someone who does." In this instance, maintenance must serve production with the mission of enabling them to perform their job better, faster, and cheaper. When maintenance has a "serve the customer" mindset, the daily activities of how work gets done and how communications take place, will improve dramatically. This type of cultural change is no small task and will likely require some education and training to help maintenance personnel make the paradigm shift.

Business Plan

Once a customer or market need is identified, plans on fulfilling these requirements must be identified and written. A Maintenance Business Plan keeps the production and maintenance teams focused on what is important for improving plant performance, defining what should be accomplished, when it should be accomplished, and how it is to be accomplished.

Defining goals is the first step in the plan development. For each goal, strategies must be determined, demonstrating how the goal will be achieved. When maintenance pays close attention to their customer's business, the proper improvement goals and subsequent strategies can be chosen and executed.

Goals & Strategies

Let's say our plant produces picnic tables and the busy season runs from January to May. During these five months the plant must run close to 100% capacity. Last year during the busy season, the plant incurred 1000 hours per month of lost production due to machine failure. This resulted in late shipments, increased manufacturing and shipping cost, and unhappy customers. This year, manufacturing and maintenance set a goal to reduce lost production hours due to machine failure to 500 hours per month. The goal is set at 50% of last year's performance. Setting the goal is easy. The real challenge is determining what strategies should be executed to ensure the goal is achieved.

Usually there is more than one way to achieve a goal. The key is to choose the best strategy, the one with the highest possibility for success. In the case of reducing lost production due to machine failure, one strategy could be to replace all equipment with new. Needless to say, this would require a large capital investment. Another strategy might be to increase and improve the level of the preventive maintenance effort. Another might be to hire more maintenance personnel so problem response time will be reduced. These are just a few strategies that can be utilized to achieve the goal. The key is to choose the strategy wisely by thoroughly understanding the business environment and the maintenance team's capabilities. It will then be possible to choose the strategy with the highest probability for success.

The goals and strategies must be adjusted based on the customer's business climate. If the plant forecast is for high production output compared to capacity, then certain maintenance goals and strategies will be required. If the plant production forecast is declining, then certainly a different set of goals and strategies will be required. Today, most maintenance goals and strategies remain the same regardless of what is happening to the production forecast. Business planning is primarily done by opinion, with no written plans and no variation based on business climate.

Maintenance can be compared to an ostrich with its head in the sand when maintenance leaders keep executing the same plan, regardless of what is happening in the production business environment.

By knowing what the customer will need in the future and where current performance levels are, adjustments can be made to accommodate future requirements. Setting goals jointly with the production personnel. It ensures you're on the right track and also gets their buy-in. You will need their support to ensure success.

Key Performance Indicators

Within the business plan, Key Performance Indicators (KPI's) are necessary to track maintenance performance. The improvement strategies being implemented must be measured and correlated to the goal. If the strategy is to increase the level of preventive maintenance, then the man-hours spent doing preventive maintenance is a KPI. As the KPI increases, management should correlate the positive trend in the KPI to the performance of the goal. Making this correlation ensures maintenance is focused properly, executing the proper strategies, and having the desired affect on production performance. If the KPI has a positive trend, then the goal should also have a positive trend. If that isn't the case, then the assumption regarding the correlation between the KPI and the goal may have been invalid and a different strategy may need to be chosen. Some other examples of key 14 PSM ° 10 ° 2001 performance indicators are proactive versus reactive maintenance man-hours, number of reactive maintenance calls, maintenance overtime hours, and work order backlog levels. The KPI will relate to a particular strategy, which is supporting a corresponding goal.

A simpler way to remember the difference between a goal and a KPI is that some measurements are result measurements and some are activity measurements. The goal is the result and the KPI is the measurement of the maintenance activity in support of that goal.

Performance Reviews

Performance reviews are an element of accountability. The reviews are a formal presentation of the maintenance effort measured to a Business Plan. During these reviews, maintenance should present what is going right and what is going wrong with respect to the current maintenance Business Plan. This is usually done with top plant management and in a formal setting. The goals, strategies, and KPIs should be presented in chart form. Maintenance and production decide, jointly, how they will overcome any obstacles in the way of success. It now becomes a joint effort with everyone's eye on the same target.

The Challenge of Change

Bringing a business perspective to maintenance will improve the contribution of maintenance to the production effort. There are some challenges to this type of change and it is focused on the leadership function. Presently, maintenance leadership primarily views the world from a technical point of view. Most maintenance leaders have grown up through the ranks of maintenance, and after a successful career of fire fighting, they get promoted to lead others in the efforts of fire fighting. Because of this tradition, maintenance leaders make most of their decisions from a technical perspective. They understand the manufacturing equipment and so they assume they always know the best solution to the business problems involving equipment. What they need to understand is that to take on business problems, a business approach must be applied. Most maintenance managers will require some additional education and training, targeted at broadening their perspective and enabling them to solve problems for the betterment of the overall business.

When maintenance is managed as a business, the business disciplines of planning, measuring, and reporting will foster continuous improvement. The information supporting investment decisions will be available and the mystery surrounding maintenance's contribution to the bottom line will have been solved.

Contact Brad McCully at Advanced Technology Services by calling 800.328.7ATS or through www.advancedtech.com.