

Gaining and sustaining management support for MRO strategies

As economic conditions continue to redefine manufacturing business strategy, companies are searching for innovative and practical solutions that allow them to reduce costs and boost the bottom line. Increasingly, one of the common targets for these cost savings initiatives is the maintenance department.

Today maintenance and asset management are more directly tied to business performance than ever before.

Opportunity is there

The emphasis on effective capital asset management provides maintenance managers with a golden opportunity to communicate the strategic benefits of maintenance and reliability programs. But this is often easier said than done. In a 2002 survey of MAINTENANCE TECHNOLOGY

readers, 29 percent of respondents cited “lack of management understanding of maintenance strategies” as a major or insurmountable barrier to implementing a more comprehensive asset management program.

The challenge is broader than making a business case for a single project or an initiative. Selling the value of maintenance to management requires a significant investment in time and energy to educate management on the tactics and on the concept of maintenance as a business strategy.

It involves a shift in management’s attitude from one that sees maintenance as a necessary expense to one that views it as an opportunity to increase profits. The language must be clear and concise and the message must be presented in a way that translates technical features and objectives into meaningful financial benefits.

Speaking the right language

Maintenance departments have historically operated outside the scope of plant-wide decisions. Now, with asset management a key managerial concern, maintenance- and business-level goals and priorities are becoming more tightly integrated within the organization. Each group pursues business objectives from different perspectives, but in many cases, distinct differences in language and methods of communication lead to

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misinterpretations and a general lack of understanding between the top floor and the shop floor.

The situation worsens when maintenance managers focus on the technical aspects of a project. For example, when management asks for rationale supporting the need for a new software package, maintenance managers may elaborate on the features of the software, such as its trending and communication capabilities. Instead, the discussion should focus on the fact that the software will help identify equipment degradation, prevent unplanned downtime, and reduce maintenance costs by \$50,000 per year, for example.

Define the metrics

Every organization measures success by specific metrics. Unfortunately, the metrics used in the front office are not always easily transferred to the plant floor, nor are they easily translated across industries, other internal departments, or multi-national organizations. If management does not fully understand the impact that maintenance activities can have on the organization, it is less likely it will support new initiatives or additional expenses.

Mutual understanding is a two-way street. Just as corporate managers often do not see eye to eye with maintenance managers, the reverse is also true. It is up to the maintenance manager to overcome this communication gap.

A good first step is to educate management on the value of maintenance, which involves helping them understand maintenance metrics. Then, as maintenance functions become more tightly coupled to company profits and corporate metrics, management will more likely see maintenance as an important contributor to success rather than simply providing a support role.

Position maintenance initiatives

To achieve maximum success within any organization, all departments must be united on the business objectives. Effectively articulate^{3/4}in management terms^{3/4}what will be accomplished with the maintenance initiatives and how they relate to the underlying business goals.

For example, how does the need to improve machinery diagnostics relate to the overall organizational goal? When making the case, it is vital to stay objective and understand the

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business trends that drive the need for the request.

Continue to relate the anticipated results to the business drivers as they pertain to management goals and customer demands. For example, how does the condition-based monitoring program help improve equipment uptime and reduce expenses related to lost production and scrap? More specifically, how does this impact an underlying management goal?

Example: Atlantic Copper

In some cases, maintenance strategies are born out of necessity.

Consider Atlantic Copper, a high-volume copper producer in Huelva, Spain. Atlantic Copper's decision to implement a comprehensive preventive maintenance program was tied directly to its business strategy.

Copper production is typically a high-volume business with single-digit margins in an industry that inherently sees consistent price fluctuations. With a quarter of its \$80 million annual operating budget tied to maintenance costs, even a small gain in maintenance efficiency would provide a positive impact on Atlantic Copper's bottom line.

“ To achieve overall productivity in the top 90 percent, we had to realign our maintenance strategy,” explained Charles Rich, manager of technical knowledge management at Atlantic Copper. “In 1997, 10 percent of our maintenance was preventive and 90 percent was corrective. Basically, everyone was running around putting out fires rather than performing planned interventions. Now the percentages are switching as we focus more on preventing equipment problems. As a result, we've dramatically lowered our maintenance expenses and increased margins.”

At the heart of Atlantic Copper's maintenance strategy is an integrated condition-based monitoring program. Using advanced vibration analysis tools, workers can monitor machine performance and track maintenance histories. This allows them to see if certain breakdowns or failures recur over time, when a machine was last repaired or inspected, or even if a pending work order already exists for a particular machine. This coordination of effort can help the company avoid needless maintenance expenses.

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With an extensive condition monitoring program that covered 226 machines, Atlantic Copper was able to identify and correct a variety of maintenance problems, saving approximately \$400,000 during the initial test phase. The company estimated that it achieved a 56 percent return on its investment in less than a year and a half during what the company considered the program's test phase.

Accurately assessing maintenance needs

In order to build a solid case for a maintenance strategy, it is important to first have a clear picture of what the maintenance needs really are.

Many manufacturers rely on intuition and experience and assume their processes are designed well enough to meet production goals. To avoid this pitfall, a good first step is to conduct a broad-based assessment of the maintenance and engineering processes, as well as any activities that support the manufacturing process. The goal is to identify any factors that inhibit equipment or operator performance. Often, the root cause of a performance issue is hidden by how problems manifest themselves in the process.

The assessment process identifies performance issues, establishes baseline metrics, and outlines recommended corrective actions that can be implemented through maintenance initiatives (such as increased machine availability, reliability, and safety). Moreover, this methodology provides the critical documentation needed to illustrate the value of maintenance to management.

Examination of the environmental conditions and the maintenance history of each piece of equipment helps predict how long each component should last, given its performance history and current working conditions. By conducting reliability measurements, organizations can recognize common machine failures and empower managers to determine if a specific failure was related to equipment design, human error, or faulty components.

Together, these components are designed to uncover opportunities to help increase both operator and machine efficiency, as well as to assist companies with the adoption of proactive, predictive maintenance activities. Individually, the assessments can be used to target specific areas of concern.

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Gap between current and ideal activities

In many cases, there is a significant gap between the current level and sophistication of maintenance activities and what maintenance managers see as ideal. For example, according to the survey of MAINTENANCE TECHNOLOGY readers noted earlier, respondents indicated they spend 40 percent of their efforts on reactive tasks, but see 12 percent as the ideal amount. At the same time, respondents indicated they spend 15 percent of their time on predictive activities, but see 35 percent as the ideal amount.

Much of this discrepancy is the result of the changing role of maintenance along with increased capabilities to perform the functions.

For example, 20 years ago, the primary goal of maintenance was loss prevention and the fundamental requirement was to provide the basic need at minimum cost. Today, companies are researching all possible means to extend the productive life of these assets^{3/4}and ensuring they remain productive at the right times. Advances in technology and an array of new tools are helping to dramatically improve maintenance functions and optimize performance.

Example: Carter Holt Harvey

Carter Holt Harvey Ltd.'s Whakatane Mill, located in New Zealand's Bay of Plenty region, was forced to reassess its maintenance strategy due to ongoing equipment reliability problems. The mill manufactures a range of clay-coated boards, boxboards, and industrial grade plaster linerboard, producing more than 85,000 tons each year.

To gain better control over mechanical failures that had cost the mill about \$100,000 in lost time and materials, the mill upgraded its condition-based monitoring system to meet its production and efficiency goals.

According to Colin Gracie, reliability engineer, "We needed to get a better handle on the condition of our critical equipment components so that we could resolve the mechanical failures that, if not corrected, lead to major unplanned shutdowns. The previous system was limited in both the number and frequency of test points and was restricted to hard copy historical data^{3/4}a situation that made trending and long-range analysis difficult, if not impossible. Today, trending of condition-based information to identify problems and root cause is critically important in order to improve the efficiency of the maintenance process."

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The redefined condition-based maintenance system includes computerized data collection, storage, and reporting capabilities across a much broader range of critical production equipment. This package allows the mill to cover more equipment, more frequently, with fewer workers.

Since installation of the system in April 1996, the maintenance department has recorded a 60 percent reduction in unplanned downtime, resulting in a savings of \$230,000 each year. The predictive maintenance program has allowed the mill to increase the number of machine test points by 150 percent, resulting in a more reliable manufacturing process. The increased confidence in the system has allowed Carter Holt Harvey to reduce its MRO inventory by \$55,000.

Defining the value of maintenance

According to a recent ARC Advisory report, poor understanding of the issues at stake and a lack of the right metrics are two fundamental reasons management often perceives its maintenance operations as overhead. In many companies, there is no transparency to the losses incurred from unnecessary downtime or late deliveries, and no tangible returns attached to the role of maintenance in avoiding downtime or making on-time deliveries. Consequently, many companies grossly underestimate the overall effect maintenance operations have on the company's bottom line.

The value of maintenance can often be tied to the organization's key business objectives and can differ widely from company to company.

For example, some companies operate their business and hinge their success on a simple principle: deliver high-quality products at affordable prices. To meet this goal, every facet and supporting element of a company's manufacturing process needs to be as lean as possible. With a maintenance strategy that focuses on reducing expenses, improving uptime, and optimizing production processes, the company can parlay this philosophy into higher profits, while gaining a distinct competitive advantage.

In other organizations, the value brought by a maintenance department may be measured by how it impacts production throughput. The equation is simple: if machines are not available, the company cannot produce products and profit opportunities are missed.

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In this scenario, the entire manufacturing organization takes equal responsibility for uptime, quality, and profitability. The goal is to make a certain number of units per day, based on market demand, and do whatever it takes to get it done. The maintenance department's priority is not on preventive activities, but rather on directly supporting production output goals.

Developing a strategic plan

Once a company's maintenance value has been aligned with the organization's business goals, the next step is to develop a strategic plan that identifies exactly how the proposed initiatives will support the business.

The plan should outline what needs to be achieved and what results will be determined. Developing a set of methodologies for measuring and communicating the ROI is the final step in any well-built maintenance proposal and can provide the closing rationale management needs to support the plan.

A future article will provide information on developing a solid maintenance strategy tied to measurable results. **MT**

[Mike Laszkiewicz](#) is vice president, asset management, at [Rockwell Automation](#), 1201 S. Second St., Milwaukee, WI 53204; (414) 382-3736