



# **Four Strategies for Making Maintenance Your Competitive Advantage**

How A World-Class Maintenance Strategy Can Improve  
Efficiency, Cost and Performance on the Factory Floor



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# Introduction

There's a technological renaissance that is transforming the look, systems and processes of the modern factory. You might even call it a sea change.

Advanced digital and analytical technologies are reinventing the rules of competition, how work will be performed and what leadership must do to lead. Whether you call it Industry 4.0, Manufacturing 4.0<sup>1</sup> or the Connected Factory, what's under way heralds remarkable opportunity for industrial manufacturers.

So what does the “back-of-the-house” maintenance function have to do with such big picture, strategic changes? Everything.

As manufacturers work to identify, adopt and scale enabling technologies – such as smart machines, the Internet of Things, Big Data, plant floor analytics, mobile computers, the cloud and collaborative robotics – maintenance will of necessity be redefined and transformed.

Leveraging these enabling technologies will allow maintenance to improve efficiency, cost and performance on the factory floor, which in turn can create competitive advantage. But beyond that, enabled maintenance can become a new and different revenue stream for the OEM portion of manufacturing. This means that OEMs can utilize data and analytics to sell customers condition based maintenance, asset optimization and predictive performance management programs for their equipment, creating a new level of maintenance competitive advantage by adding unique value.<sup>2</sup>

But how do today's manufacturers get from here to there? How do they use these new data and computing tools to go from reactive maintenance – repairing machines that are broken – to proactive or predictive maintenance – monitoring for future equipment failure and performing maintenance before failure occurs?

It starts with having the vision to build a world-class maintenance strategy.

In many respects, the ongoing shift from reactive to proactive maintenance the industry has been discussing for several decades will take on a new sense of urgency.

# Establish a Preventive Maintenance Program

**Despite all the talk about predictive maintenance, the reality is that for many U.S. manufacturers, up to 90 percent of the maintenance they perform still is conducted on a reactive rather than proactive basis.<sup>3</sup>**

If this is how your company operates, establishing a preventive maintenance (PM) program is your first step to building a world-class maintenance strategy.

Based on a time or usage trigger, PM is planned and routinely performed on equipment to reduce the possibility of it failing.

By lubricating, cleaning and adjusting machine components regularly, machines will operate at full efficiency, producing a superior, more consistent product. This cements your reputation as a reliable partner, increases your customer retention rate and can open doors for new business acquisition.

Timely PM maintenance will make your operation more effective. Breakdowns will be minimized and repairs will be quicker to fix, reducing downtime, emergency repair calls and missing parts. Plus, efficient machines use less electricity, produce less waste and are safer, which may reduce insurance rates.

The bottom line?  
Unplanned, or reactive maintenance typically costs three to nine times more than planned maintenance.<sup>4</sup>

The savings generated by a successful PM program can go a long way to making you a maintenance hero.

## **Next steps:**

1. **Do your due diligence. Find out more about PM programs by searching it online.**
2. **Begin talking to suppliers about the cost, advantages and disadvantages of specific PM programs.**

# Invest in Technology

## **Technology investment is a must for a world-class maintenance strategy.**

One of the first purchases to consider is a Computerized Maintenance Monitoring System (CMMS). This is software that allows your maintenance people to keep a record of the assets they service, schedule and track maintenance tasks, and record work done. A CMMS can be installed on-premises or reside in the cloud and be run online.

Either way, your operation will benefit from<sup>5</sup>:

- Fewer work outages with preventive maintenance
- Less overtime due to better scheduling
- Better accountability through task completion alerts
- Information capture,

facilitating a record of problems and specific solutions by machine

- A record of assets and performance, helping managers analyze energy usage and plan maintenance spend

Another must for maintenance investment?

Smart sensors. The cost of these has fallen dramatically, encouraging companies of all sizes to reap their benefits.

A critical part of a larger IoT system, smart sensors connect devices and systems, allowing machines to talk to one another. By embedding sensors that measure lubrication levels, temperatures, vibration, gear velocity and more, data is generated that helps

manufacturers predict performance. Embedded sensors track abnormal conditions, generating alerts with impending downtime. This enables manufacturers to move from Preventive Maintenance – where maintenance is scheduled routinely — to Predictive Maintenance (PdM), where maintenance is performed as needed based on data foreshadowing.

## **Next steps:**

1. **Determine a budget for maintenance technology investment.**
2. **Investigate CMMS for your operation. Talk to area suppliers and arrange for a CMMS demo.**
3. **Explore how to facilitate machine-to-machine communication on the factory floor. Determine if you want to embed sensors and what sensors make sense for your specific equipment.**



# Create a safer, more effective work environment

Machine efficiency is one thing; human efficiency is another. A world-class maintenance strategy cannot afford to ignore the people servicing the machines. A safer, cleaner work environment improves morale.

Why should you care?

A happier workforce takes pride in its work and produces higher quality work. That means you have your best people on the job, driving towards your deadline. Not only that: motivated employees miss less work and are more willing to work with others to achieve goals.<sup>7</sup>

The investment in workplace safety pays off on the bottom line, too. According to the U.S. Department of Commerce: "Safety is good business. An effective safety and health program can save \$4 to \$6 for every \$1 invested."<sup>8</sup>

But happy workers are not the same as effective workers. Maintenance thought leaders suggest that maintenance belongs side-by-side with production, purchasing, engineering and logistics as an equal player in the business resource planning process. This allows maintenance to have a voice in improving the operational effectiveness of the plant. By helping improve asset productivity, maintenance becomes a competitive advantage for the business, which also adds stature to the department and builds the respect of its people.

Maintenance standards and goals should be developed that increase KPIs (Key Performance Indicators) over time. Department progress in meeting these standards should be posted publicly. This will make the maintenance process more transparent, ingraining its importance in your environment and culture.

Continual training and improvement underpin a world-class maintenance strategy. Holding regular, 30-minute training sessions with maintenance staff over an 18-24 month period<sup>9</sup> and concretely demonstrating how that training is realized on your factory floor is one way to up-skill maintenance people. Another way is to make continual learning of best practices a part of your plant's maintenance staff performance management goals – ideally typing these goals directly to the overall plant PM goals.

It's easy to keep doing things the way you've always done them. But that won't position your company to take advantage of the manufacturing renaissance already underway.

## Next steps:

1. **Form a PM task force. Bring together engineering, operations and maintenance personnel to facilitate connection and communication.**
2. **Find out how your maintenance people feel about safety and morale in the plant. Send out a questionnaire on the topic or schedule meetings for group discussion on the topics.**
3. **Include maintenance managers in the business resource planning process.**
4. **Start a rewards program for maintenance-originated ideas that improve productivity.**

# Get Management Buy-in

**You can't build a world class maintenance strategy without management buy-in and commitment. The maintenance vision may be yours, but the decision to fund and support that vision is theirs.**

Without having that top-level support, any initiative you launch will be as effective as pushing on a rope.

In order to create the connected factory, leaders are being pressured to become more collaborative, innovative, and responsive to new ideas and new directions.

Charged with identifying and developing new skills for tomorrow's workforce, today's leaders are looking for new behaviors, structures and strategies. It's their job to orchestrate far-reaching change; it's your job to present and sell the change that will work best for your operation.

**Here are a few thoughts on how to present the argument:**

- **Decide if Preventive Maintenance or Predictive Maintenance is better for your business. PM is less expensive, but since tasks are schedule- based, breakdowns will likely still occur. PdM is more of a best-in-class solution, but upfront costs are higher. However, the benefits of lowered labor costs and optimization of equipment will reduce maintenance costs by 25%.<sup>10</sup>**
- **Present an argument for change backed by solid facts, figures and logic. Compare current state to future state. How is maintenance handled today? What are the costs associated with it, including downtime, overtime and early replacement of equipment? What issues are there? Explain how PM or PdM will solve these problems and provide additional value.**
- **Include case studies or examples of another company (one similar to yours) that has experienced productivity gains as a result of implementing a maintenance plan similar to yours. Being the first to try something is risky for management. A case study will make it easy for leadership to say "yes".**
- **Present a schedule to show how the new strategy will be phased in over time. Change won't happen overnight. Be sure to include personnel needs and budget considerations with timelines in your schedule.**
- **Set staged goals and metrics. Implementing a new maintenance strategy should be a continual improvement process.**

# Conclusion

**Despite the promise of today's technological renaissance, demand for manufactured products is off, dampened by Brexit concerns and political uncertainties.**

In such a slow-growth environment, productivity gains are critical. Manufacturers who are open to new ideas that improve the efficiency, cost and performance of factories – such as creating a world-class maintenance strategy – will set themselves apart.

To realize the potential of IoT, leadership must realize the competitive advantage of maintenance, helping it move from reactive to proactive, and enabling it to become a new and different revenue stream.

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