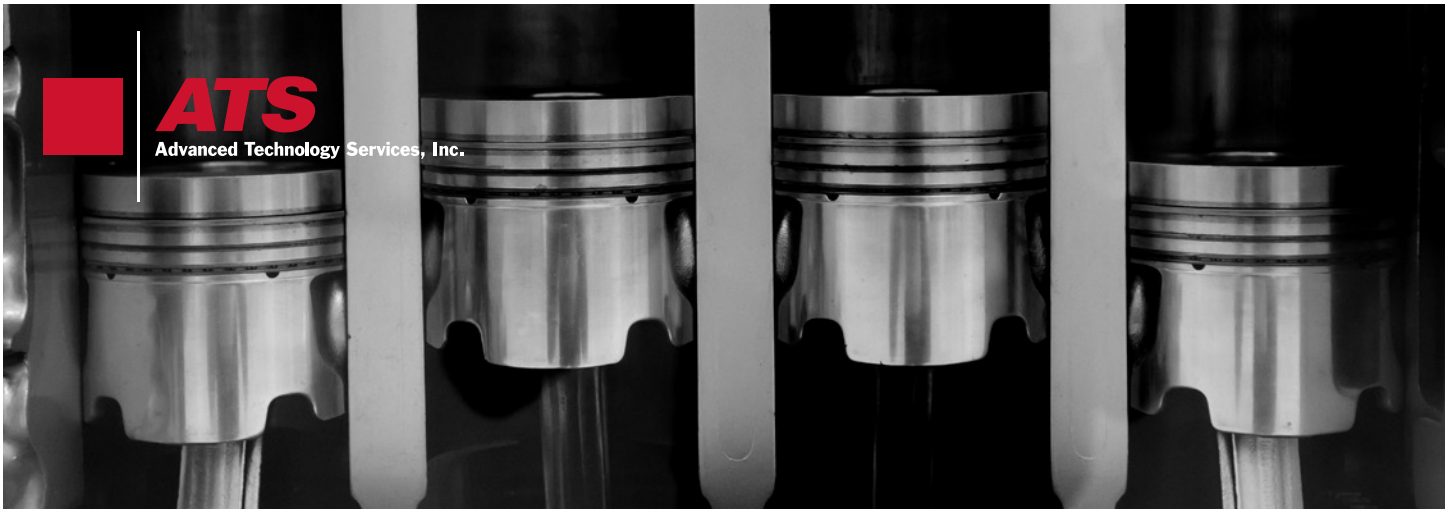

3 Key Components to Enable Predictive Maintenance

The ultimate goal of predictive maintenance is to reduce valuable machinery downtime. Predictive maintenance has become an essential tool for almost every industry because of its efficiency in detecting faults during the early stages of failure, allowing for a much simpler, safer, and cheaper repair solution than the alternative: catastrophic failure. Today, companies are adopting predictive technologies at staggering rates. According to Markets and Markets Research, the market size for predictive maintenance technologies is just above $4 billion, and is expected to eclipse $12.3 billion by 2025 with the help of IoT.

As with any program there is a very simple formula for predictive maintenance success. There should be an owner, someone who is held accountable and responsible. There should also be attainable goals for the program; understanding what program success looks like may mean that the owner needs to go through extensive training. An evaluation of current program maturity should follow with a comparison with best practice. Then a proper roadmap can be built to bridge the current state to the future, best practice state. Because most companies operate with limited resources, one of the toughest jobs is going to be prioritizing the time, money, and energy spent on certain initiatives to close the gap. In order to enable predictive maintenance, there are three key components organizations will need to get right:

1) Securing the right people;

2) Implementing the right processes;

3) Deploying the right technology.

SECURING THE RIGHT PEOPLE

Having met a number of successful program owners over the years, I have found that they are incredible people who possess a variety of common traits and skills, including the following:

• *Understanding of Tribology and Reliability* - This subject matter takes years to master, and the sheer volume of material requires a champion to be passionate enough to want to continually learn.

• *Excellent Communication* - Being able to bridge the gap in communication between upper management and plant-floor operations is a tough skill to learn. A champion should understand each group's needs and wants, as well as have the ability to speak to both in terms of what's important to them.

• *Organized* - Just as a train conductor must keep all the trains running on time, a champion must be able to juggle multiple projects within the program, making sure that efficiency is kept high and waste is minimized.

• *Motivational* - Gaining buy-in is a major contributor to program success. A champion should know how to effectively motivate team members on both sides of the operation (management and skilled labor).

• *Negotiation* - As with most things in life, there is always a trade-off. Being able to understand the trade-off and negotiate the best possible outcome for the company can be a valuable trait for a champion.

• *Problem-solving* - There will be many obstacles on the path to program success. Possessing the ability and resourcefulness to navigate these obstacles is rare because the obstacles are often broad in scope. They may range from engineering problems to the culture or personnel.

I have witnessed great initiatives with all the proper resources fail because the wrong people were placed in the wrong positions. Someone may have been placed in charge but was not a true champion of the process. These individuals were hired to do a job that had certain tasks. Even though they might have been successful in performing those tasks, the program was ultimately a failure.

On the other hand, I've seen underfunded and understaffed initiatives thrive because the lead was a proper champion. What's so special about these people that could literally sway a site from one extreme to the other? What they possess has the aura of a "secret sauce." Although I don't know all the ingredients to this secret sauce, I do know that a large part of it is passion. You can tell just by having a simple conversation with these people. You can see it when they describe their role at the company. You can witness it in the way they carry themselves during their day-to-day activities. It becomes infectious. That's how you know you have a true champion for the program.

As much as I hate to admit it, consultants or corporate subject matter experts can't be the site champion. They can be essential contributors—they can show passion, and they can perform all the activities that can help you be successful, but they can't be your champion. Relying on them offers many advantages, including benefiting from their knowledge and experience in implementing a program. More often than not, the program will get up and running almost flawlessly. The problem comes down the road: if no one at the site buys in or feels that they are partly an owner of the project, the likelihood of sustaining success will diminish over time.

IMPLEMENTING THE RIGHT PROCESSES

Different areas of your workforce need to work together to enable predictive maintenance.

The truth is that predictive maintenance either is affected by or has an effect on every person that walks through the facility. This includes everyone from the wash crew in a consumer package goods facility to the operators of a steel press, and obviously maintenance technicians. Any change in process, whether operational or environmental, will have a measurable effect on machine life, and this effect is often conveyed through predictive technologies. Communication and training are cornerstones of a great program. If your wash crew can describe how they can affect the moisture content of an oil analysis report for a critical machine, then you are well on your way to becoming a world class program.

Processes need to be updated to allow for predictive maintenance.

Processes must always evolve to better capitalize on the use of the technology. If you do not have a periodic review of your processes and incorporate better, newer, more efficient technology, you will fall behind the competition.

Real-time data will affect your processes.

As we learn how to process the vast amounts of live data that is being generated, we become much better at making decisions faster, and with more certainty. In some cases we can even automate the corrective actions based on the date, and this in turn completely changes the dynamic of the process.

DEPLOYING THE RIGHT TECHNOLOGY

What kind of technology will need to be in place to enable predictive maintenance?

Today, the foundation of Predictive maintenance technology is built around oil analysis, thermography, vibration, sonic/ultrasonics, and motor current analysis. There are many other things that we can measure to get a sense of machine health, but these seem to be leading the way.

How will people and processes need to adjust to use this technology?

We are generating technology at a very fast pace. It has become a part time job just trying to stay on top of the advances and making sure that the latest and greatest is a worthwhile investment. Many times companies think that the investment stops at the purchase of a new data analyzer, when in reality that is just the beginning. The best piece of technology in the world is worthless without a properly trained operator.