

Advantages to Employing Predictive Maintenance



Not many years ago, families took off on family road trips with little more information than the destination and a paper map that revealed the most probable best path. Today, GPS navigation applications show us road closures, congestion, accidents, and other obstructions, and redirect us to paths that save us time, energy, and money.

The advantages of utilizing predictive maintenance (PdM) technology in asset-intensive environments are similar. While the common methodologies of corrective and preventative maintenance certainly provide value, PdM advances effectively improve maintenance strategies like GPS has for road trips.

The Advantages:

Studies show that the longer it takes to identify impending failures in equipment, the cost of repair also rises and the downtime for that equipment extends. These same studies show that predictive maintenance technology is more effective at detecting impending failures in equipment sooner in the P-F (potential-functional failure) curve. So, what are the things you should know to best take advantage of PdM?

1. Time is not a good predictor of failure

A study by Nowlan and Heap for United Airlines (1978) demonstrated that only 11 percent of the total failure modes were time based; thus, 89 percent of existing failure modes cannot effectively be addressed with traditional time-based methodologies. Put another way, preventative and corrective maintenance techniques are an incomplete maintenance strategy. Conversely, PdM technology allows the user to detect potential and hidden failures and schedule maintenance at optimal time periods or act.

2. The time to repair the roof is when the sun is shining

Predictive maintenance improves the reliability of equipment by predicting failures. By doing so, it not only saves money, it also improves the overall safety of the facility. But planning and preparation for implementing PdM is also necessary.

Some questions you should answer along the way include: Do I have the data available, and is it measuring the right things? Is the data trustworthy? Is the monitoring in real time or near real time? Is my staff ready and willing to use data more? How much does each piece of equipment cost to replace, and what's my tolerance for allowing each asset to fail?

From there, determine if you will create the solution in-house or work with a partner. Look for companies that have monitoring algorithm based on the equipment data currently available and failure prediction models.

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3. Predictive maintenance is great, but still imperfect

Implementing a PdM solution has both direct and indirect benefits. Direct benefits include things such as early detection of equipment failure, analysis of root causes, improved productivity, safety compliance, reduction of resources, and more. Indirect benefits include enhanced knowledge gained from applying a big data solution and modeling-based machine learning, as well as immediate decision-making capabilities and better communication.

But no system is without limits. PdM solutions provide an improved alert system, but they are not fool proof. These tools are still dependent upon the knowledge and understanding of the operators and maintenance personnel to act. Therefore, the more education and training provided, the greater the returns will be on the system.

4. Recovering costs of implementation

In every negotiation of a new investment, the topic of cost has to be addressed. Predictive maintenance solutions are an investment, but those costs are easily recovered by the unexpected maintenance costs you'll no longer experience. PdM pays for itself by minimizing lost production due to downtime and outages. It also reduces staff overtime and other labor costs associated with equipment failures.

Automation and predictive maintenance solutions are a part of the advanced technology comprising of the fourth industrial revolution. Certainly, there are experts in every factory, site, and plant, but the long working experience of people is not easily captured and transferred in the current structure. Many companies need to improve technology – if for no other reason than for the purpose of accumulating and utilizing this data. PdM solutions do not replace this expertise, but rather serve as a valuable tool to improve efficiency and achieve operational excellence.

About HanAra Software

HanAra Software connects deep industry knowledge with innovative technology to provide integrated data management and predictive maintenance solutions for process plant management. Through the implementation of HanAra solutions, plants enjoy results including reduced costs, increased efficiencies, and ultimately improved plant safety. HanAra Software combines solutions with training and care programs to support clients every step of the way.

HanAra Software is the United States headquarters of South Korean-based BNF Technology. BNF Technology is a professional software development company that provides optimized software solutions for operational management of process plants. Coal-fired, combined-cycle, seawater desalination, and petrochemical plants use our solutions. Since the year 2000, BNF Technology has provided various solutions to more than 250 facility sites across two continents to help them achieve operational excellence.
