



White Paper

Make the Most of Existing Sensor Deployments

Don't miss out on some of the biggest benefits of plant data



Introduction

Companies around the world are ramping up their levels of automation as they look to reap the rewards of Industry 4.0. The current economic climate is only accelerating these trends since it makes it increasingly difficult to operate workplaces safely and profitably while relying entirely on a traditional human workforce.

Global sales of robotic systems are forecast to grow at 25.38% CAGR between 2020 and 2025, for example, with reports noting that one of the key enablers of this robotic revolution is the falling cost of sensors. Increasing automation is driving up sensor sales in turn, with analysts predicting that industrial sensor sales will enjoy healthy growth of over 7% CAGR during the same period.

Even so, the truth is that many organizations are not enjoying the return on their automation investments that they should be, because much of the data collected by this growing deployment of sensors is not being used to its full extent.

This paper considers how sensors originally deployed for a wide variety of purposes can often be successfully co-opted to enable one of the biggest gamechangers in the realm of Industry 4.0 – making the switch to Predictive Maintenance (PdM).



What's the big deal about PdM?

In simple terms, PdM is about spotting emerging maintenance problems early so that machinery can be fixed before it breaks down or otherwise impacts on production.

The most obvious benefit for most PdM users is a massive reduction in unplanned downtime, the cost of which can be many thousands of dollars an hour in some industries. This alone means that companies investing in PdM systems can typically enjoy a return on their investment measured in months, not years.

But that's not all. Other major benefits include a reduction in over-maintenance, since PdM ensures that machinery is only maintained and repaired when necessary, rather than at fixed intervals. As a rule of thumb, PdM saves between 8 and 12% compared to the cost of conventional preventive maintenance programs that rely on taking action according to a rigid schedule.

Quality improvements are another common benefit of PdM because deteriorating production equipment might otherwise result in off-spec products. Similarly, having everything operating smoothly can increase the overall efficiency of processes in a range of ways, such as reduced energy consumption or increased capacity and throughput.



How can existing sensors help?

Condition monitoring is the key to successful PdM, so gathering data about how machinery is behaving is essential. Some sensors are deployed specifically to support condition monitoring. Vibration and temperature monitors are both popular options, for example, thanks to their ability to help render a range of potential problems visible, such as worn bearings, misalignment of rotating equipment or leaky seals.

However, many organizations have already deployed sensors for other purposes, and many of these can provide extra useful information when their data is fed into a PdM system.

Here are three examples of the many ways that data from existing sensors can be used to support PdM:

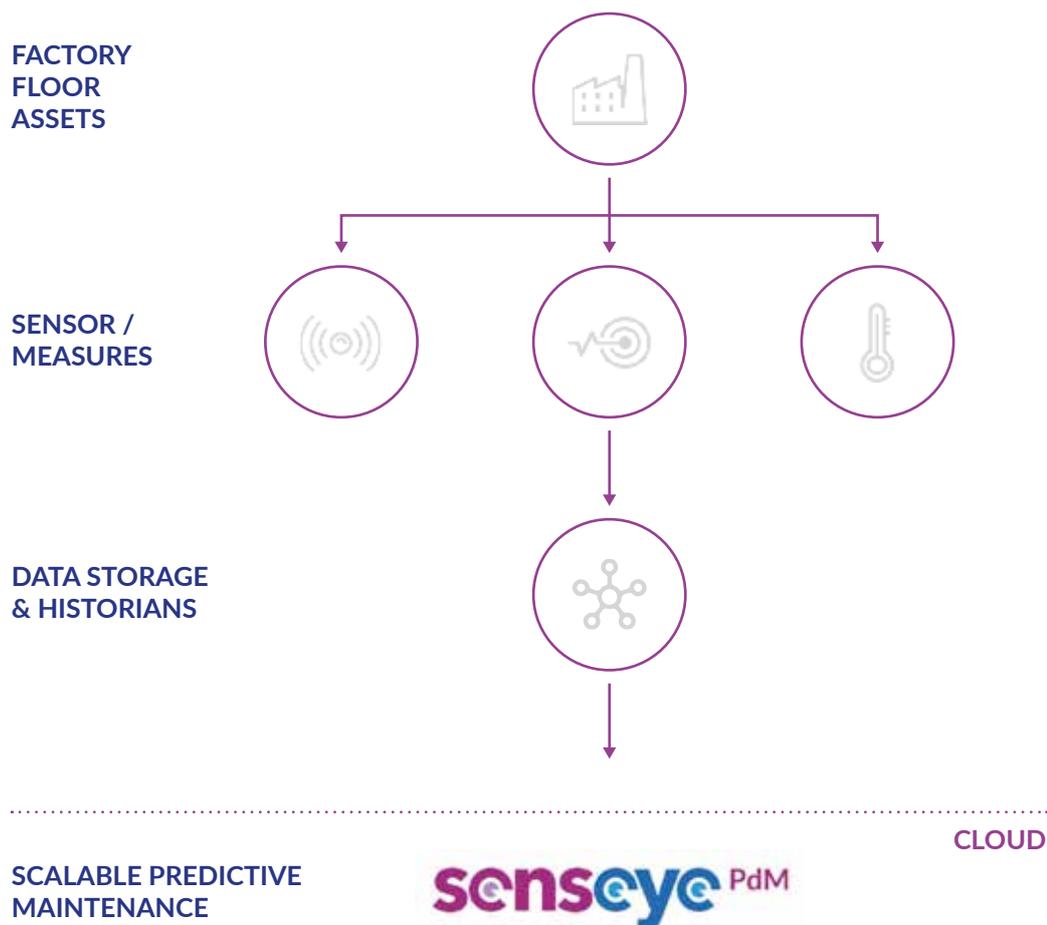
- Robotic arms are typically fitted with positioning sensors to check that the robot places the end effector correctly each time it moves. If a PdM system spots increasing inaccuracies trending over time, it could indicate a problem with one of the robot's servo motors.
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- Sensors are often deployed to monitor product characteristics as part of the company's quality control regime. If sensor data shows that the thickness of a sheeted product is struggling to remain within tolerance, that could tell the PdM that wear is starting to affect the production machinery upstream.
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- Speedy production is critical for most organizations so most cycle times are monitored, whether the operation involves screwing on a bottle cap or carrying out a spot weld. A gradual increase in the variation in that cycle time means that something in the machinery has changed and that could indicate a deterioration.



Finding the right fit in a PdM solution

The most versatile PdM solutions today are delivered using a cloud-based Software-as-a-Service model. This minimizes disruption and makes them easier to scale up or down to match customer requirements.

Ideally, they will be able to take data from many existing sources, whether that's straight from the plant floor instruments or via historians or other data stores.



Senseeye PdM meets all these requirements. In addition, it offers users several unique features.

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The unique benefits of Senseye PdM

Senseye PdM uses advanced machine learning for condition monitoring. Its proprietary algorithms can turn data into an accurate forecast of the remaining useful life (RUL) of manufacturing assets – a technique known as prognostics.

Senseye PdM connects to existing data sources while the assets continue to operate as usual. It operates in the background to analyze normal machine behavior, as well as historic data where available. It is then ready to provide the insights needed to begin building a scalable Predictive Maintenance program.

Senseye PdM can monitor hundreds or thousands of assets at any given time by automatically gathering and analyzing plant data. The solution's algorithms can generate hourly updates for individual assets and flag up exactly where maintenance teams should be focusing their efforts in the short-term, as well as helping to optimize any plans for future maintenance. This could result in 'information overload' for operators, but Senseye includes a remedy for that.

While most condition monitoring systems focus on abstract concepts of 'machine health', Senseye PdM rapidly learns to direct the operator's attention to their most pressing maintenance priorities using the Attention Index®. Whenever Senseye PdM raises an alert, the operator indicates at the touch of button whether that alert is useful or not. This gradually teaches the system to direct the operator's attention towards the most important trends or events, rather than bombarding them with low-level alerts from all directions. This is especially helpful in major deployments.

Existing Senseye PdM customers are already enjoying reductions in downtime of 50% on average. In fact, Senseye is so confident that the system will deliver major savings that it is backed by the unique ROI Lock™ guarantee: If deploying Senseye PdM fails to reduce unplanned downtime as agreed upfront, customers can claim a refund on their entire subscription fee.

Book a demo today to see how Senseye PdM can help you make much more of your existing plant data.

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ABOUT THE AUTHOR

Over the last 10 years Johnathan has held multiple positions in the industrial Condition Monitoring field working for a number of blue-chip manufacturing companies around the world. In his current role he is the lead Pre-Sales Engineer for the U.K. and U.S.

About Senseye

Senseye, headquartered in the UK with regional offices in Germany, France, USA, and Japan is the leading global industrial software company for Asset Performance Management. Senseye helps global Fortune 500 organizations to save millions of dollars in unplanned downtime and maintenance efficiencies every week in key industries such as Automotive, Manufacturing, Heavy Industry and FMCG.

To start your Predictive Maintenance journey with our experts and see our solutions live, [click here](#) to request a demo or get in touch with our team.

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