



White Paper

# Predictive Maintenance Promises Increased Margins for Pulp and Paper Mills



# Introduction

Pulp and paper businesses have more reason than most to be cautious about digitization sweeping through industry and wider society. After all, the rise in digital communications has hit the demand for paper hard in recent years. The industry has responded by promoting a variety of innovative new products alongside existing strong performers such as packaging board. These moves have helped companies to maintain profitability, but creativity and innovation cannot be confined to product development if businesses hope to optimize profits in future.

Typical pulp and paper mills are big, complex and energy intensive. They run processes where seemingly minor issues with equipment can lead to major problems with product quality. They also operate 24/7 and downtime can typically cost up to \$20,000 an hour in lost production.

Predictive Maintenance can overcome these challenges. It can reduce downtime and maintenance costs. It can also help to optimize production performance, safeguarding product quality and reducing energy bills. The potential impact on profitability is enormous.

The latest digital solutions have the power to deliver Predictive Maintenance as a practical reality, promising a great return on investment for minimal risk.



# Get set to succeed in a changing world

Paper and pulp companies certainly face some strong head winds, but there is also some good news. Observers remain optimistic about the prospects for the forestry products overall, predicting continuing global growth in packaging and tissue papers, as well as in pulp for hygiene products and even textiles. Business data platform Statista suggests that the worldwide market for paper and pulp will grow from \$63 billion in 2019 to \$79.6 billion by 2024.

Even so, new solutions will be needed to optimize profits in the emerging 'new normal', which throws up significant challenges. For example, the popularity of digital communications has hit the industry hard. 2015 saw worldwide demand for graphic paper decline for the first time ever, according to management consulting firm McKinsey and Company, and the fall in demand for these products in North America and Europe over the past five years has been more pronounced than even the most pessimistic forecasts. Meanwhile growth in demand for paper products in China has been slower than expected and Asian production is ramping up to displace imports from Europe and America.

These external pressures make it essential for pulp and paper mills to focus on improving efficiency and bringing down costs.

Predictive Maintenance may seem like a niche topic against the backdrop of such sweeping change. However, mill owners should not underestimate the big difference Predictive Maintenance could make to their businesses. Introducing a program of Predictive Maintenance can make a major contribution to profitability, as companies in many other industrial sectors are already discovering.

In addition, mill operators face the same demographic challenges as businesses across the aging economies of the developed world, with 70% of experienced workers set to retire in the next 15 years. Companies need to find ways to prevent all that expertise being lost to the business. The machine learning and artificial intelligence embedded in the latest automated systems can help to counter the evolving skills shortages.





# What difference can Predictive Maintenance make?

Predictive Maintenance relies on monitoring the condition of machinery to identify much earlier when something is going wrong. This enables engineers to fix problems before they cause a breakdown that would impact on performance or disrupt production. So how much difference could that make in a paper mill?

Take a simple bearing failure as a common example of what can go wrong. Manufacturers give an expected useful life for every bearing, but estimates suggest that fewer than 10% of bearings reach that limit before failing. This means that more than nine out of ten bearing failures are premature. In other words, they are only avoidable with the right condition monitoring systems in place to warn when a failure is imminent.

In an industry where there may be thousands of bearings installed across a single site and unplanned downtime from machinery failure typically costs \$20,000 per hour in lost production, it is easy to see how preventing these breakdowns can impact on profitability.

**As well as reducing downtime by up to 50%, other benefits of Predictive Maintenance include lower labor costs, optimized management of spares and the avoidance of any secondary damage to the mill or to product quality.**



# Modern solutions promise persuasive ROI

Predictive Maintenance systems demand effective condition monitoring – watching for changing patterns of machine behavior that could be a sign of trouble brewing.

That used to mean data experts having to laboriously monitor and analyze the data coming in from individual machines. But the latest automated systems use advanced machine learning algorithms to provide condition monitoring without the need for human intervention.

These automated condition monitoring solutions are also cloud-based and readily scalable, making it easy to deploy on a few machines to start with, before rolling out seamlessly across the entire operation. This cloud-based Software as a Service (SaaS) delivery model means that the price per machine usually drops away sharply as the number of machines covered by the Predictive Maintenance deployment grows.

By reducing the investment, time and effort needed to implement condition monitoring, the new generation of smart solutions have shifted the return on investment (ROI) equation strongly in favor of Predictive Maintenance.

**Experience shows that Senseye customers can expect to recoup the cost of their subscriptions between five and ten times in the first year alone.**

# Senseye PdM delivers proven results

## Senseye PdM delivers proven results by enabling true Predictive Maintenance:

- 🛡️ 10-40% lower maintenance costs
- 🛡️ 30-50% reduction in downtime
- 🛡️ 45-55% increased productivity
- 🛡️ 85% increase in maintenance accuracy

The system is designed to begin learning from day one and starts providing useful insights in as little as 14 days. Operators can prime the system upfront with helpful information - such as the data recorded in the run up to previous failures, for example - but the algorithms are designed to start from scratch if need be.

Better still, Senseye PdM can integrate with existing data historians or maintenance systems, such as OSIsoft PI and Oracle EAM, adapting and enhancing maintenance arrangements. This means users can leverage prior investments to provide a robust Predictive Maintenance function and deliver valuable cost savings. Existing users include blue chip companies in manufacturing, heavy industry, automotive and FMCG, who typically enjoy a 50% reduction in unplanned downtime.

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 its Attention Index. Whenever Senseye PdM raises an alert, the operator can indicate 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 that can cover hundreds or even thousands of assets.

Senseye PdM delivering effective support immediately, with the eventual goal being to reach the point where it can deliver accurate forecasts of the remaining useful life (RUL) of every asset - a technique known as prognostics. It is like having an experienced operator on hand who knows when a rattling pump needs immediate attention and when it can safely be left until the next planned shutdown.

A woman with dark hair in a bun, wearing glasses and a light blue button-down shirt, is looking down at a device. A man with a beard, wearing a dark blue t-shirt, is standing behind her, also looking at the device. They are in a warehouse or industrial setting with shelves and equipment in the background.

## IS SENSEYE PDM RIGHT FOR ME?

Senseye PdM is a cloud-based, Software-as-a-Service solution, so it is easy to scale up or down to match customer requirements. It is also backed by Senseye's 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.

**Want to find out more about how Senseye PdM can help to boost your profitability? Book a demo of Senseye today.**





## ABOUT THE AUTHOR

Robert Russell is the Chief Technology Officer at Senseye. After graduating with a BEng in Mechanical Systems Engineering, Rob spent 20 years designing and deploying asset management and condition monitoring systems within the aerospace, defense and transport sectors.

Having a mechanical engineering background in the software sector has enabled him to bridge the gap between the end user and his software teams. Since 2015, Rob has guided the vision for the ongoing development of the world's first complete automated Predictive Maintenance and prognostic solution, built for the scale of the IIoT – Senseye PdM.


### 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 learn more about Senseye PdM [click here](#) to request a demo or get in touch with our team.

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