



## Case Study: Alcoa

### Overview

Alcoa Corporation is a global leader in bauxite, alumina, and aluminum products, built on a foundation of strong values and operational excellence dating back more than 130 years to the world-changing discovery that made aluminum an affordable and vital part of modern life.

Alcoa operates production plants worldwide managing many diverse assets of different ages and capabilities. Since developing the aluminum industry, and throughout their history, their talented employees have followed on with breakthrough innovations and implemented best practices that have led to increased efficiency, safety, sustainability, and stronger communities wherever they operate.

Since 2018, Alcoa has partnered with Senseye in achieving best-in-class technology and operational practices for Predictive Maintenance.

### Challenges

With difficult margins in the global aluminum market and increasing operational and production efficiency targets, Alcoa established a global corporate initiative to tackle these challenges and focus on adopting the best maintenance practices including moving from "Planned Maintenance" to "Predictive Maintenance".

They were looking for a robust leading specialized solution delivering Predictive Maintenance as a product capable of easily leveraging existing machine and maintenance data feeds and without installing thousands of new sensors. Also, this product had to be used by machine operators without requiring complex and long setup or extensive training and be rolled out to different sites around the world whilst providing a rapid return on investment.

"We are pleased to have partnered with Senseye on this corporate initiative to enable Predictive Maintenance and improve operational efficiencies. The results and ROI were executed in a prompt manner and our users are thrilled with the ease of use of the Senseye PdM product.

We are now looking at opportunities in the Bauxite Mining & Refining business streams, as well as defining the best business cases to commence further deployment in the Smelting business stream."

**Bruno Longchamps**, Global Aluminum Manufacturing Intelligence Manager, Alcoa

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## Solution

Following a thorough evaluation of the market, Alcoa partnered with Senseye, selecting one of their Aluminum Smelter plants located in East Iceland as the first site in a structured global deployment. Designed as a zero-waste-to-landfill project, this site is among the most environmentally sustainable facilities of its kind.

To enable Predictive Maintenance at this site, Senseye PdM, the Predictive Maintenance product from Senseye, was connected to Alcoa's existing machine and maintenance systems, including OSIsoft PI and Oracle EAM, to deliver a unified and powerful intelligent solution, all without installing a single new sensor.

Using Senseye PdM's flexible data integration capabilities, Alcoa now monitors operational and critical machinery across the HDC and Rod Mill casting lines, with more assets regularly and easily being added. Senseye PdM analyzes machine condition indicators against historical information by using proprietary and mechanical engineering focused ML algorithms that automatically provide maintenance engineers with alerts and diagnostics before any functional failures. For example, maintenance personnel can now be notified two weeks before issues are experienced with saw motors due to loose components, helping to avoid 12 hours of unplanned downtime – leading to significant improvements in OEE.

## Outcomes

- ⦿ Predictive Maintenance deployed at a leading "sustainable" site.
- ⦿ Existing data and infrastructure investments leveraged.
- ⦿ Reduced unplanned downtime by 20%.
- ⦿ Improved operating efficiencies and reduced maintenance costs.
- ⦿ Achieved ROI within 4 to 6 months.
- ⦿ Roll out of Senseye PdM at additional Alcoa sites.

## Continuing the Journey

Following the success of this project, Senseye is working with Alcoa to understand the recipe for success at Fjardaal such as best practice workflows to integrate Senseye PdM into the day to day lives of Alcoa personnel and ultimately best feed outcomes into Alcoa maintenance & reliability management processes. From here Alcoa will be best placed to leverage learnings and replicate success as they consider future deployments across more of their plants, where Senseye PdM could be used to monitor a range of assets as diverse as critical pumps, pressure equipment, conveyors and pot-breakers with no limit on the other kinds of assets that can be monitored.

## Ecosystem

Senseye is an OSIsoft official partner and has a flexible architecture to allow connection to any CMMS / EAM system, enabling organizations to gather insights from existing sensors, machines and maintenance systems to deliver a unified asset-health view for intelligent Predictive Maintenance. Senseye's proprietary technology is supported by unique methodologies built on Asset knowledge, Mechanical Engineering, Condition Monitoring, Maintenance practices and a flexibility around data sources to provide a repeatable and scalable framework for customer success.

“Being able to adapt to our customer's existing technology roadmap and deliver a unified view is key to supporting best-in-class corporate programs such as the one led by Alcoa. By collaborating with our technology partners like OSI, we can leverage existing customer investments to complete the Industry 4.0 value-chain and provide our customers with a full predictive maintenance solution that delivers results within the first 14 days of use, as opposed to a siloed solution or lengthy and costly platform.”

**Robert Russell, CTO, Senseye**