OSIsoft®

SUMMARY

Sandvik Coromant

Industry

Manufacturing–Industrial Machinery

Business Value

- Overall Equipment Effectiveness (OEE) Tracking
- Process and Performance Optimization
- Real-time Operational Dashboards

PI System™ Components

- PI Server™
  - Asset Framework (AF)
- PI Connectors™

System Integrator

- Amitec

Industry 4.0–From Proof of Concept to Enterprise Value at Sandvik Coromant

In 2015, Sandvik Coromant embarked on a proof-of-concept pilot project to track and optimize machine performance using OSIsoft's PI System™. There was just one catch. The project group asked for ten weeks to deliver proof of value—upper management gave them just four.

Racing the Clock–4 Weeks to Proof of Value

Upper management had good reason to be skeptical. For two years, Sandvik Coromant—the machine tools division of Sandvik, a 155-year-old company with 8000 employees and customers in 130 countries—had been working to accomplish the same objectives with a different software solution. After two years of trying, the project had been deemed unsuccessful. The pressure was on the team running the OSIsoft pilot program to prove the new project's worth, and quickly.

Sandvik Coromant partnered with Amitec, a system integrator that specializes in PI System architectures. Their goal was to prove that machine data could be used to monitor and optimize Overall Equipment Effectiveness (OEE).

Working with the PI System's Asset Framework (AF), the team was able to model the system quickly and pull data from a wide array of sources, including operator reports, MES, and third-party software generating process data for the machines. Because of the time constraints on the project, the PI System's tools for quickly previewing analytics and backfilling gaps in data proved to be invaluable to the team.

"Using preview and backfilling in AF Analytics really was a game-changer," said Amitec service engineer Andre Johnsen. "Being able to just delete tags, recreate them and backfill with AF Analytics saved us a lot of time."

The team used the PI System to combine a wide array of data streams into a waterfall diagram showing the factors that impact machine performance over time. The diagram allowed managers to see at a glance what types of losses or downtime periods are most affecting a given machine's output.

The waterfall diagram is a powerful way to assess OEE, and Sandvik Coromant managers were happy with the results, but it wasn't enough. With all this data at their fingertips, the team decided to push further in developing real-time interactive displays, so that machine operators could monitor and tweak their processes in real time. The result was a system that worked for plant floor operators as well as business managers.

In four weeks, "we were expected to come out with a proof, on paper, of a concept. But what we really came out with was actually a working, live system," said Michael Boyce, Sandvik Coromant's machining process expert.

Sandvik Coromant Takes Industry 4.0 to the Enterprise

Since the success with the proof-of-concept project, Sandvik Coromant has deployed OSIsoft data solutions in a systematic way throughout the company, moving from proof-of-concept to a working enterprise system.

Sandvik Coromant's expanded deployment of the PI System in their machine tool division has gotten a boost from the development of PI Connectors, a recently-launched OSIsoft tool that automatically scans and collects data from remote sensors and other data sources outside of central control systems. The PI Connectors are a next-generation data collection tool that extends OSIsoft's ability to collect data from large systems like SCADAs and DCSs to smaller devices at the edge.

Even though PI Connectors were launched after Sandvik Coromant's project was already underway, the company was able to integrate the new application seamlessly into their project, according to Sandvik senior project leader Erik Hedvall. Today, Sandvik Coromant uses PI Connectors to automatically scan for machine data in real time and presents that data alongside other operational data in custom dashboards that both management and machine operators can use to optimize plant operations.

As of the fall of 2017, Sandvik Coromant was in the process of rolling out their new system for tracking machine performance from a couple of sites to a broader swath of Sandvik Coromant.

"We will have about 20 different sites and at least 800 machines connected. This is the first step for us for going towards Industry 4.0," Hedvall said.

To learn more about Sandvik Coromant and the PI System, watch the full presentation here.

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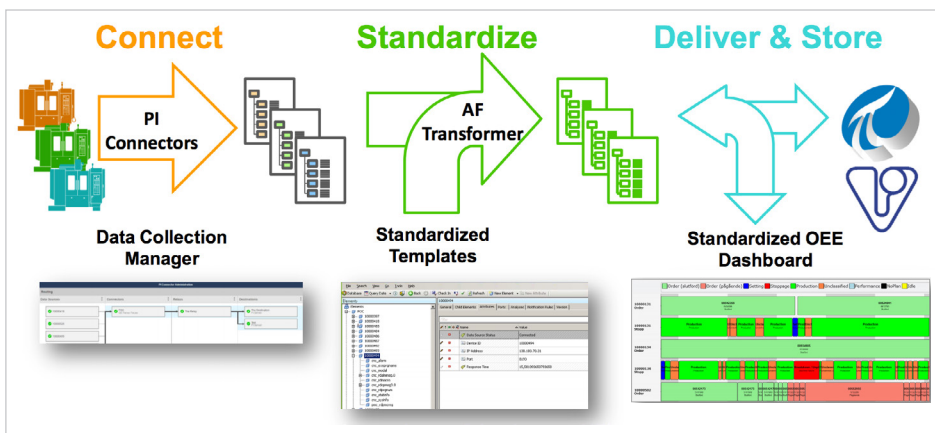
With the PI System, Sandvik Coromant was able to connect to data sources and then store and deliver sensor data in context for deeper insight.

Hall, Ray. Customer Innovation Showcases: Latest and Coming Product Releases. OSIsoft.com. 17 October 2017. <https://osisoft.com/Presentations/Customer-Innovation-Showcases--Latest-and-Coming-Product-Releases-1x/>