



CONNECTED PAPER: HOW MONDI IS USING THE PI SYSTEM TO REACH PRODUCTION GOALS

A pulp and paper factory is made up of equipment, processes, and people, all of which must work together to drive efficiencies across the production line. As one of Europe's largest pulp and paper factories, Mondi Štětí is continually seeking ways to make better, faster decisions—while minimizing environmental impact and maintaining consistent quality. For 19 years, Mondi has used the PI System™ to gather real-time intelligence to give people the visibility they need to optimize equipment and processes. As the factory has expanded, Mondi's journey with the PI System has grown, putting the company on the path to reaching lofty production goals.

PAST FORESIGHT ENABLES FUTURE OPTIMIZATIONS

In 2018, the Mondi factory produced a total of 550,000 tons of paper products. After a banner year, Mondi's goal for 2020 was to produce one million tons of product. However, doing so required increased recovery and efficiency, putting additional demand on the production line and necessitating DCS setting changes. In preparation, Mondi purchased new equipment, including a recovery boiler, two pulp digesters, and a steam turbo-generator, all of which had to be optimized to meet goals.

While nearly doubling production in just over two years is a hard-hitting goal, Mondi's engineering team was confident because they had the foresight to lay the right foundation back in 2000 when they installed

the PI System. "My idea is to have the PI System as the standard in Mondi," said Miroslav Škrabánek, Technological Data Collection and PI System Manager at Mondi Štětí, during PI World San Francisco 2019. However, the pivotal point came when Mondi expanded its data modeling and visualization capabilities in 2014, ultimately allowing them to build digital production models with [Asset Framework \(AF\)](#), a contextualization layer of the PI Server, create displays, and visualize results.

A DATA-DRIVEN COMMAND CENTER

In 2018, Mondi further expanded the PI System usage to create its EcoFlex platform. Engineers in the control room can now obtain an overview of the entire factory in real time, including digestors, bleach plants, water treatment and recovery.

CHALLENGE

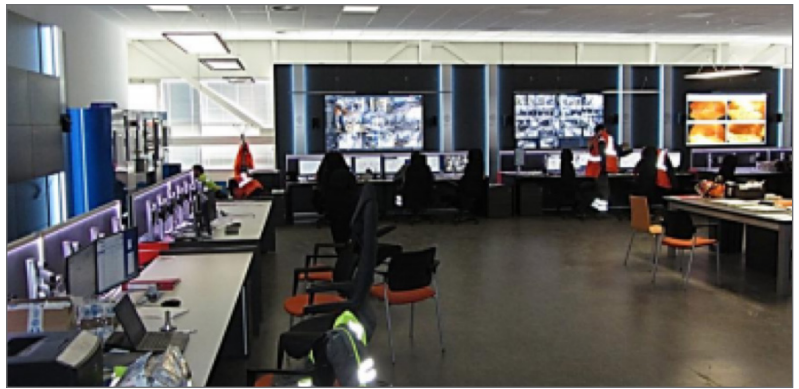
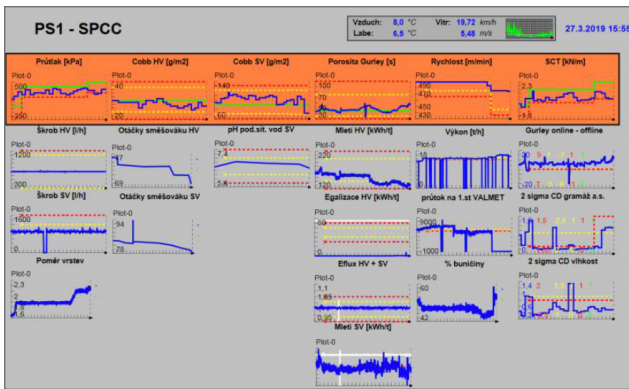
Needed to monitor, stabilize and tune new production lines and processes.

SOLUTION

Expand the use of the PI System across the production line by making it a single source of truth for operations.

BENEFIT

Increased visibility across the organization, saving 62,000 EUR annually and improving environmental KPIs by 5-7.5%.



Mondi monitors the production of over 500,000 tons of pulp and paper annually using the PI System.

Each paper machine has its own real-time display, highlighting 24 hour performance, speed, target speed, percentage of production and more. Users can see liquor and pulp storage, monitor liquor recovery and balancing, recovery boiler production as well as any changes in paper runs, all of which are critical to expanding production efforts.

With the help of the PI System, energy dispatchers have access to steam and electricity consumption and production information as well as turbine data, enabling them to quickly understand if they'll be able to cover energy consumption using internal sources or if they'll need to buy electricity or sell any excess.

The EcoFlex platform is also a critical part of Mondi's predictive maintenance strategies, displaying the number of starts on each motor, vibration and condition data as well as room temperatures, all in an effort to understand future maintenance needs and repair costs.

ENERGY CONSUMPTION EFFICIENCIES

Energy consumption is closely linked to operational efficiency, and events such as paper breaks increase consumption and thwart production efforts. By visualizing production line data streaming from paper machines and looking for ways to increase efficiency while decreasing unplanned stoppages, Mondi saved €38,000 per year with the PI System. In addition, natural gas is purchased from an external supplier and any overages are charged at a premium. To

ensure energy consumption was within limits, the team used AF calculations to show actual and estimated future consumption. From there, operators took action to control usage, saving an estimated €14,000 per year. "We can control this consumption and if we are... we don't exceed the reserve capacity—it's very important," said Škrabánek. "So we save huge money in this case."

ENVIRONMENTAL IMPACT

For Mondi, company goals don't just center around production. Acutely aware of its environmental impact, the company set out to decrease pollution and emissions. Within the EcoFlex platform is a single process control chart comprised of quality parameters. Calculations and limit values in the PI System are used in conjunction with Event Frames, a PI System feature enabling engineers to capture and analyze important process events. With this information, they can quickly identify which asset is the source of emissions, understand how long it takes to burn off those gasses, and determine root cause.

Thanks to the EcoFlex platform and the PI System, data is democratized, giving operators, technologies and managers access to DCS and PLC data from anywhere. Now, they can tune and stabilize processes, improve balancing, manage energy consumption, and quickly solve production issues in hopes of reaching their 2020 production goals.

For more information about MONDI Štětí and the PI System, watch the full presentation [here](#).



"...and we can use it [the PI System] for finding so-called "golden run" to find the best parameters for different kinds of products."

— Miroslav Škrabánek,
Technological
Data Collection and
PI System Manager

Škrabánek, Miroslav. "Operational Data Enables Industry Transformation"
<<https://www.osisoft.com/Presentations/Operational-Data-Enables-Industry-Transformation--Mondix/>>