

Major Asian paper mill increases control system utilization with ABB Ability™ Collaborative Operations



A Southeast Asian paper mill has 13 paper machines, which creates significant production complexity. They rely on ABB to continually update equipment, keep productivity high, maintain predictable service costs and improve process performance.

Challenge

Fine paper and stationery are made to exacting standards of quality and thickness. The pulp stock used to create this fine paper and stationery represents a unique challenge for the paper mill, as the media is thick and sticky—combined with the additional challenges of high temperatures, steam in the vapor space, agitation, and the slightly corrosive and abrasive effects of the pulp slurry. So, mill managers must constantly measure, monitor and amend the performance of each paper machine.

ABB Solution

An ABB customer since 2003, this major Southeast Asian paper manufacturer, known for using leading-edge technology to produce a wide range of high quality pulp and paper products, is using ABB Ability™ Collaborative Operations to optimize operations, increase equipment availability and reduce paper quality variation. These improvements lead to better product quality and consistency, fewer rejects and more sales.

ABB Ability™ Collaborative Operations connects people in production facilities and enterprise headquarters to ABB's technology and expertise. It sets up both customers and ABB with remote monitoring and predictive analysis technologies to ensure safety and security, increase productivity and improve operational efficiency.

ABB Ability™ Collaborative Operations

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01 With Collaborative Operations, customers can access data from a single device or across a fleet of plants - all the way up to the enterprise. ABB experts also monitor this data in real-time via Collaborative Operations Centers worldwide to resolve issues and head off problems using solutions such as Performance Optimization, Analytics & Visualization, and Condition Monitoring.

Automating production requires processing large amounts of data. As complexity increases, so does the volume of data. Collaborative Operations helps paper producers make productive use of this data to identify and address production, quality and cost issues that can inhibit peak performance. This improves return on capital. Collaborative Operations helps to maximize business value by turning data insights into direct action.

At the mill, Collaborative Operations is reducing cycle times on product grade changes, resulting in higher production. It is also stabilizing moisture as well as additive levels using multivariable predictive controls. Specific improvements include increased production due to higher equipment availability, fewer sheet breaks, lower chemical costs and reduced paper quality variation.

ABB has three Collaborative Operations Centers dedicated to pulp and paper industry customers in Finland, the United States, and Singapore, as well as many more that serve other industry segments. All three pulp and paper centers may be involved with delivering advanced services to this mill in order to leverage various skill sets in each region.

Results

- Increased production
- Reduced chemical costs
- Increased equipment availability
- Reduced sheets breaks and unplanned downtime
- Accelerated grade changes
- Reduced time to complete bump tests by 70 percent
- Reduced overall loop tuning effort by 75 percent
- Reduced ash MDL variation, leading to more saleable product



Featured Solutions

02 Before ABB Ability™ Performance Optimization for control loops was engaged, the process shows large swings. Once the set points were identified, a dramatic improvement in loop tuning was achieved, resulting in increased process control.

03 Machine direction variation increased after putting the automatic ash control in manual mode. Once automatic mode was restored, the ABB Ability™ Performance Optimization for QCS was able to demonstrate measurable equipment and system improvements, including a reduction in basis weight variation of 40 percent, while achieving improved

ABB Ability™ Collaborative Operations

Collaborative Operations connects people in production facilities and enterprise headquarters to ABB's technology and expertise. It sets up both customers and ABB with remote monitoring and predictive analysis technologies to ensure safety and security, increase productivity and improve operational efficiency. Collaborative Operations solutions for this mill include:

Performance Optimization for control loops

service identifies and corrects loop performance issues to improve control performance and restore optimum results from process automation. It includes a series of platform-independent, non-invasive services that can be applied to any automated process or control system to benchmark, correct and sustain performance. It also reduces or eliminates the need for bump tests by giving process engineers the ability to create accurate models to predict events.

Performance Optimization for LV drives service identifies, categorizes and prioritizes opportunities to optimize low-voltage drives as well as associated equipment and processes. It uses automated data collection and analysis to reduce drive failures by identifying performance issues before they escalate.



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QCS Grade Change Improvement Service identifies, classifies and prioritizes opportunities to optimize transition times.

Paper Machine Fingerprint service is a process-performance diagnostic service for paper machine optimization that generates performance benchmarks and an improvement plan prioritized by estimated economic benefits. It is a platform-independent, non-invasive service that can be applied to any paper machine.

Performance Optimization for QCS

Performance Optimization for QCS provides a range of services to ensure high-availability of control systems, improve plant performance and to proactively alert users to impending issues so they can be addressed before they affect quality or production. Performance Optimization for QCS monitors and analyzes paper machine sensor values to determine when sensor maintenance is required to maintain optimal production.

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