With ABB Advanced Services addressing LV drives, control loops and quality control systems, a Southeast Asian paper mill improves equipment and process performance

A major Southeast Asian paper manufacturer is known for using leading-edge technology to produce a wide range of high-quality pulp and paper products. The mill is one of the world’s largest paper manufacturers.

Since 2003, the mill has worked closely with ABB to continually improve equipment and process performance to achieve objectives such as improved productivity and reduced costs. The mill employs a resident ABB service engineer, and uses a variety of ABB services, including: the ServicePro Service Management System to manage ABB service activities; Fingerprint audits to diagnose, implement and sustain paper machine performance; Automation Sentinel to ensure timely hardware and software updates; and training. With the help of ABB services, the paper mill has been able to keep productivity high and service costs low.

So with a positive experience with ABB services, mill managers decided to invest in ABB Advanced Services.

**ABB Advanced Services**
Automating production requires processing large amounts of data, and the volume of data increases with the complexity of production. As production proceeds, variables can combine to hamper productivity; finding and mitigating these variables can be challenging. ABB Advanced Services are designed to identify variables that impede productivity, and provide recommendations to mitigate these variables quickly. These services are partly automated to be more efficient, and are provided by experienced ABB service engineers both at the site, and remotely through the ABB ServicePort.
Performance Services powered by ServicePort

ServicePort
The ABB ServicePort™ is a secure, remote-enabled service delivery platform deployed at customer sites that gathers and processes large amounts of data, and performs initial analysis, so that ABB experts can more quickly help customers find and mitigate variables that impeding productivity. ServicePort allows users to view, scan and track Key Performance Indicators (KPIs) for a variety of equipment and processes so that variables can be identified and mitigated. Different equipment and processes require different KPIs. Collections of KPIs are bundled into Performance Services that address a variety of equipment and processes. To address its equipment and processes, the paper mill in Southeast Asia employs three ServicePorts.

Performance Services
Each Performance Service is “powered” by ServicePort, as ServicePort hosts built-in software tools that automatically gather and analyze specific equipment or process data, then generates KPIs that help identify variables that may impact performance. Through periodic KPI analysis, customers and ABB Advanced Services engineers can identify, classify and prioritize issues based on severity, process area, criticality and financial impact. If issues are found, customer or ABB personnel can be alerted by text or e-mail so that they may take appropriate action.

ABB Performance Services fall into three categories: Equipment Performance Services that monitor ABB-made products; Process Performance Services that monitor production or business processes; and Industry Performance Services that monitor processes specific to certain industries. The Southeast Asian paper mill has one of each type of Performance Service.

LV Drives Performance Service
LV Drives Performance Service fits the “Equipment” Performance Service category, and is a monitoring and diagnostic service that tracks the health and performance of low-voltage drive systems. Through early problem detection, the service helps plants increase equipment availability and avoid costly repairs. The paper mill in Southeast Asia employs the LV Drives Performance Service on one of its paper machines.

Mill managers knew that by gathering and analyzing Key Performance Indicator data from their drives, they could reduce the risk of equipment failure and ensure maximum uptime. When they learned that ABB offered an LV Drives Performance Service that would automatically collect and analyze drives information, and provide proactive notifications on emerging issues, they were immediately interested. They were confident that the LV Drives Performance Service could provide them with the data needed to quickly identify potential issues.

Loop Performance Service
The Loop Performance Service is a “Process” Performance Service. The Southeast Asian paper mill uses the Loop Performance Service to identify and correct control loop issues to improve control performance and ensure optimum results from their automation investment. The service analyzes and identifies control loops that should be optimized so that process control can be improved and sustained.

All equipment and process performance degrades over time. Regularly scheduled optimization both prevents degradation and improves performance.
Identify, classify and prioritize improvement opportunities

Mill managers wanted a service that their engineers could use 24/7 to improve the performance of their paper machines’ Distributed Control System control loops. After consulting with ABB, managers decided that Loop Performance Services could provide them with the improvements they wanted. The mill currently employs Loop Performance Services on three paper machines.

By using Loop Performance Service, the mill has the monitoring capabilities needed to identify any problematic control loops.

**Quality Control System Performance Service**

The Quality Control System Performance Service is an “Industry” Performance Service. ABB’s Quality Control Systems (QCS) utilized by the Southeast Asian mill are especially designed to measure and control papermaking performance characteristics. The service is customized to improve control, sensor stability and process variability specifically for paper manufacturing.

Mill managers are deeply committed to consistently producing high quality paper, making QCS Performance Service an important addition because the service quickly and accurately identifies potential problems.

The mill uses the QCS Performance Service on Paper one of its paper machines to help improve control utilization, sensor stability and process variability.
Results

Employing ABB Performance Services, the Southeast Asian paper mill has experienced measurable equipment and system improvements.

Using the LV Drives Performance Service on one of its paper machines, ABB evaluated the performance of 21 drives based on electrical, motion and temperature. Specific issues were identified that could potentially have a negative impact on drives performance. For example, five different drives were found to have temperatures above a desired threshold. ABB reported on all findings and benchmarks, and provided corrective recommendations. With drives problems clearly identified and corrected, the mill can reduce energy costs, increase throughput and maintain high product quality.

LV Drives Performance Service also helped the mill maintenance team diagnose the problems causing one specific motor to perform erratically. Without LV Drives Performance Service, mill personnel reported that it would have taken far longer to determine the problem and reach a timely solution.

Mill personnel additionally report that LV Drives Performance Service is helping the site move from corrective to preventive maintenance.

Mill managers are so pleased with the benefits LV Drives Performance Service has delivered, that they plan to add another ServicePort to power LP Drives Performance Service to an additional mill area.

The mill used ABB’s Loop Performance Service to tune all 136 control loops on one of its paper machines. After loop tuning, fiber stability was improved by 10 percent and refiner stability was improved by 43 percent. Mill personnel also saw improved paper machine runnability.

The mill used ABB QCS Performance Service tuning to reduce basis weight variation by 40 percent. With the service, the mill has experienced improved product quality.

Customer benefits

- Confidence that the mill can achieve optimum equipment performance
- Fast and effective problem diagnosis
- Ability to maintain high product quality
- Significantly reduced risk of failure

For more information, please contact:

ABB Process Automation Service
579 Executive Campus Drive
Westerville, OH 43082 USA
Email: automation.service@us.abb.com

www.abb.com/service