

PULP PAPER & LOGISTICS

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**ABB: Meeting optimization
challenges in today's
paper mills**

**HEIMBACH: Back
end sources of
energy saving**



First issue of Forest Bioenergy Review with this issue

Quality control and web imaging centre opened by ABB in Shanghai



ABB opened its dedicated manufacturing facility for Quality Control Systems (QCS) and Web Imaging Systems (WIS) at Shanghai in China in November.

With similar facilities elsewhere in the world being

transferred to what will be ABB's global centre for these products and services, it will back up the company's 'in China, for the world' strategy. The factory will deliver to customers both in Asia and around the world, addressing the demands of the global

papermaking market.

Tobias Becker, head of the Process Automation Division, ABB North Asia Region and ABB China, said, "Emerging markets such as China, Brazil, and Indonesia became growth engines of the global paper industry. Their rapid

development is fuelling demand for all kinds of automation technologies and is establishing the latest industry trends. The commissioning of the new factory is ABB Group's most recent move to optimize our global business footprint. It allows us to promptly respond to both Asia and the global markets, and sustainably provide leading products and services to our global customers."

The new factory, located in the Shanghai Pudong New Area, covers 9,000 square meters. The ABB Pulp and Paper Business Unit will transfer its entire QCS and WIS manufacturing business from its Ireland and Finland facilities to the new location, making it the company's latest global manufacturing centre.

China's paper industry has enjoyed strong growth in the past decade. To support this development, ABB began establishing the local Pulp and Paper team as early as 1994 and set up branches in Beijing, Shanghai, and Guangzhou. By 2009, ABB had successfully completed around 500 significant projects in China, building long-term partnerships with a large number of local and global paper companies including Hengan Paper, Nine Dragons Paper, Lee & Man Paper, and Huatai Group.



Meeting optimization challenges in today's paper mills

Training services that enable paper makers to make the best of their resources are being provided by ABB Process Automation. Dan Duncan* explains

Ageing equipment, a declining workforce, tightening budgets – in today's papermaking environment, it's more challenging than ever for mill executives to optimize the performance of their people and equipment.

Many mill managers have found that they have to think creatively, plan carefully and take extra measures to improve efficiency and output. For most, this means working smarter. Software packages, maintenance services, employee training and data management are all elements that can help papermakers make the most of their resources.

To keep workflow running smoothly even during personnel changes, mills invest in training that helps their people learn to operate equipment and software. Often the classes they value most are those provided by suppliers. Suppliers know their products inside and out, and are well-equipped to explain the most effective operation techniques. But educating staff takes time and when people leave, they take their training with them.

Well-trained and experienced personnel, capable of operating equipment effectively and making sound decisions, are a must-have for an operation trying to get the most use from its assets. Mills need people who can detect and solve problems, as well as those who can manage

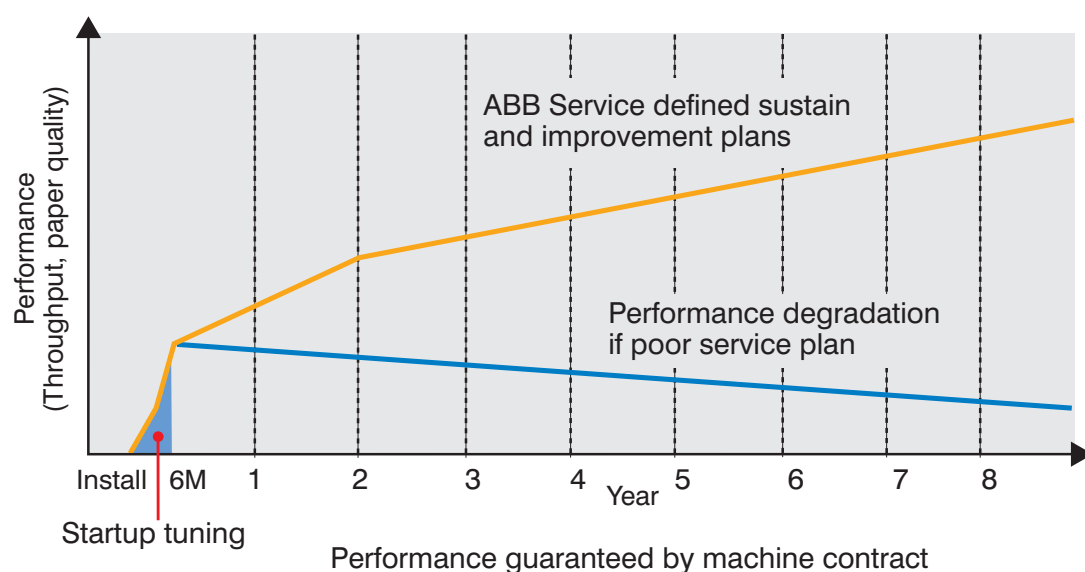


Figure 1

systems for maximum workflow and product quality.

Helping novices perform like seasoned personnel

For many papermakers, one of their toughest problems is

dealing with the knowledge gap created when highly skilled process engineers depart due to retirements, lay-offs and other personnel shifts. Companies often find themselves having to hire less experienced staff and then quickly

bring them up to speed. The knowledge gap this creates can cause problems that reverberate throughout a mill.

ABB's Optimization Services help papermakers compensate by providing access to the valuable process data their people need to make good decisions and maintain safe, profitable operations.

These services generate tremendous financial advantages for paper mills, including measurable benefits like process enhancements, production increases and direct cost savings. A mill's typical savings can range from US\$100,000 to \$500,000 annually, which they achieve with little or no capital investment.

ABB has developed a working methodology to optimize machine

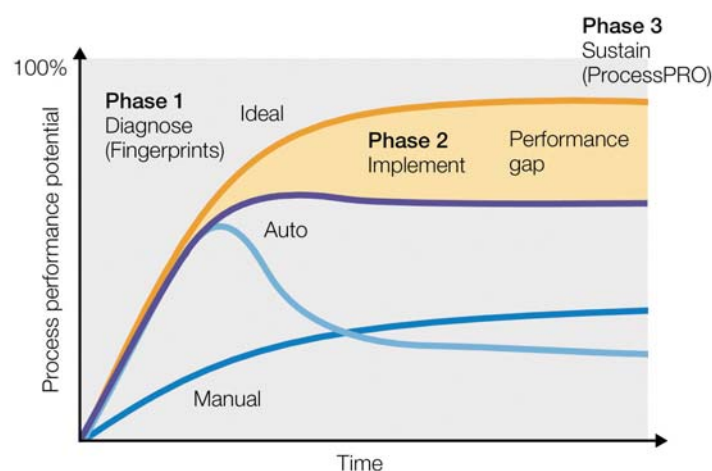


Figure 2

efficiency and productivity through process steps including Phase 1 Diagnose, Phase 2 Implement and Phase 3 Sustain level services.

Phase 1 – Diagnose

Using packaged Fingerprint services, ABB identifies the underperforming assets that cause reductions in production and conversion efficiencies. ABB can diagnose and identify existing barriers to optimization and performance improvements in specific process areas.

Phase 2 - Implement

After the Fingerprint diagnosis is complete, ABB implements a detailed ROI-based solution designed to improve efficiency, quality and production. ABB clearly spells out their diagnosis and recommendations. Historically, ABB Fingerprints have uncovered savings that are in excess of 10 times the cost of implementation. Return on investment in less than six months is expected.

Phase 3 - Sustain

Once performance improvements have been achieved, ABB works to sustain that improved performance using tools like ProcessPRO, SCAN and TRACK remote services.

Periodic Maintenance provides scheduled asset SCAN and evaluation against established benchmarks. A detailed health check report includes a summary of findings and recommended preventive and corrective maintenance.

Remote Services Condition Monitoring employs 800xA Asset Optimization to TRACK the condition of your critical assets. Conditions exceeding pre-established thresholds trigger immediate response through the

escalation process.

As papermakers struggle to maintain their competitive advantage, they find themselves working hard to overcome challenges like the knowledge gap. ABB's optimization tools help them cope with these difficulties by providing the optimization services mills most need to handle current papermaking conditions.

Success stories

Packaging board manufacturer Amcor Australasia chose ABB to optimize its process and lower the cost of manufacturing at its Botany site near Sydney in Australia. The scope of delivery covered Paper Machine Optimization Services for its BM7 (120 ktpa) and BM8 (130 ktpa) machines.

Amcor engaged ABB experts to support optimization activities, equipped with advanced data collection and analysis tools that exposed issues and identified the root cause of any problems. ABB's Process Optimizing Tools provide a set of powerful software tools for detailed data analysis, tuning, reporting and control loop simulation. These tools were deployed for machine direction

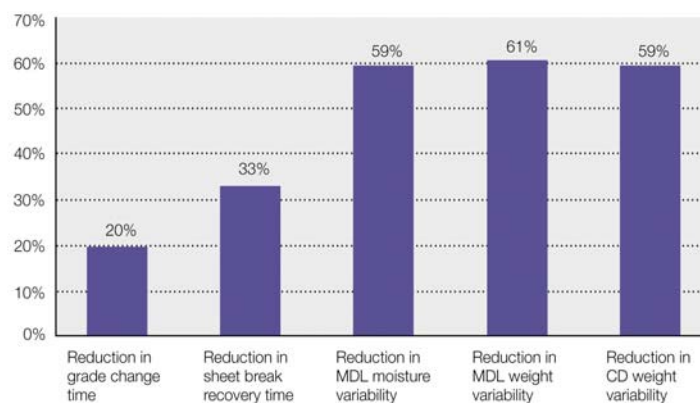


Figure 3: In this example, ABB Advanced Optimization Services use special tools and knowledge of the systems and processes in a paper making operation to identify and release valuable improvement opportunities currently hidden in the production assets. A 50 percent reduction in variability generates dramatic financial benefits

(MD) as well as cross direction (CD) controls. Process Optimizing Tools can be used with any model of ABB QCS or control systems as well as all competitive QCS and control systems by utilizing optional data acquisition features.

ABB process engineers start by generating a Fingerprint as a performance benchmark and an improvement plan, consisting of a set of improvement opportunities that are prioritized based on estimated economic benefits. Amcor was able to leverage the ABB Full Service Team in place to execute most of the

resulting resolution work orders. The actions taken range from calibration and servicing of the instrument and valves, to tuning controls, process modification, modification of the control logics, addition of some equipments and change in operating practices. To sustain process performance ABB has set-up Remote Services (RAP) to access the data logger to collect data and analyze remotely.

Results

ABB and Amcor teamwork resulted in renewed stability of the paper machines and significantly higher production. Once we address these issues it doesn't mean that these improvements are going to stay there forever, our next objective is to sustain the results achieved by periodical evaluation and look for other opportunities for further improvements.

ABB began providing optimization services in September 2009. By June 2010, Amcor had achieved record production. The papermaking company increased production by 2,570 tons over budget.

* Dan Duncan is vice president, pCoE Pulp and Paper Service, Process Automation at ABB.

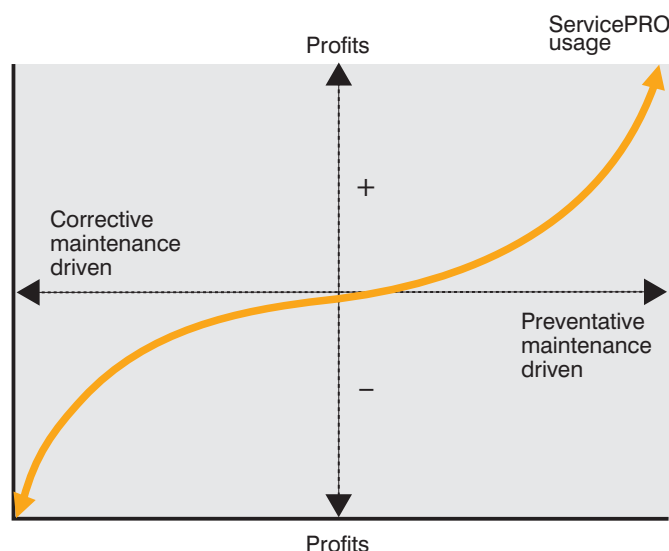


Figure 4