

PerformancePartner

2 • 2004

ABB's voice in the pulp & paper industry

Migrating for true optimization
in South Africa p. 6

Energy management
generates savings p. 10

Redefining the art of
Automation
p. 4

ABB



ABB University has adopted blended training approaches that combine traditional instructor-led classroom training with innovative technology-based training programs that take place without workers having to travel or take time away from their jobs.

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PerformancePartner



Dear reader,

Although the market is still volatile, there are encouraging signs of recovery in the pulp and paper industry. Recent years have presented challenges for pulp and paper producers as well as industry suppliers.

Investments in Asia for capital equipment remain robust. We are also seeing an upswing in spending in Europe, South America and North America. Hopefully this trend of market growth will continue.

In spite of market difficulties, ABB has worked hard during the past few years and as a result, our greatest challenges are reaching resolution. ABB's core business, Automation and Power Technologies, showed improved performance in 2003, delivering higher earnings than a year earlier. Today, ABB's pulp and paper business is also on the upswing. We are more focused and stronger than before.

To provide the best possible customer service, ABB Pulp and Paper is divided into four global regions with three technology centers. The regions, Asia, Europe, North America, and South America, are close to their markets and customers. Our technology centers manage industry-specific ABB products and applications, as well as major projects. Our structure balances our operational model by giving us both a local and centralized approach. This has proven to be a benefit for our customers.

One area where we have really gained ground is service. Aging assets and productivity improvement opportunities have driven service development at ABB.

Traditionally in our industry, service has meant equipment repair or spare parts service. Although these services are still important, today service means much more. When we mention service now, we could be talking about asset performance, equipment optimization, and performance or lifecycle management.

ABB is a leader in supplying service to the pulp and paper industry, including traditional service, asset management, equipment optimization and performance service, as well as providing mill site project management and ongoing full service. Service is so important to us that we intend to go into more detail on this topic in our next edition of Performance Partner.

Finally, we warmly welcome those attending the PulPaper 2004 trade show in Helsinki, the largest international pulp and paper trade show in the world this year. You will have a chance to see out latest innovations and hear more about them. ABB has a proud tradition of innovation, and appropriately, we will demonstrate our latest innovations, all integrated solutions under the Papermaking Suite 3.0 architecture.

Lasse Mäkelin
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Redefining the art of automation

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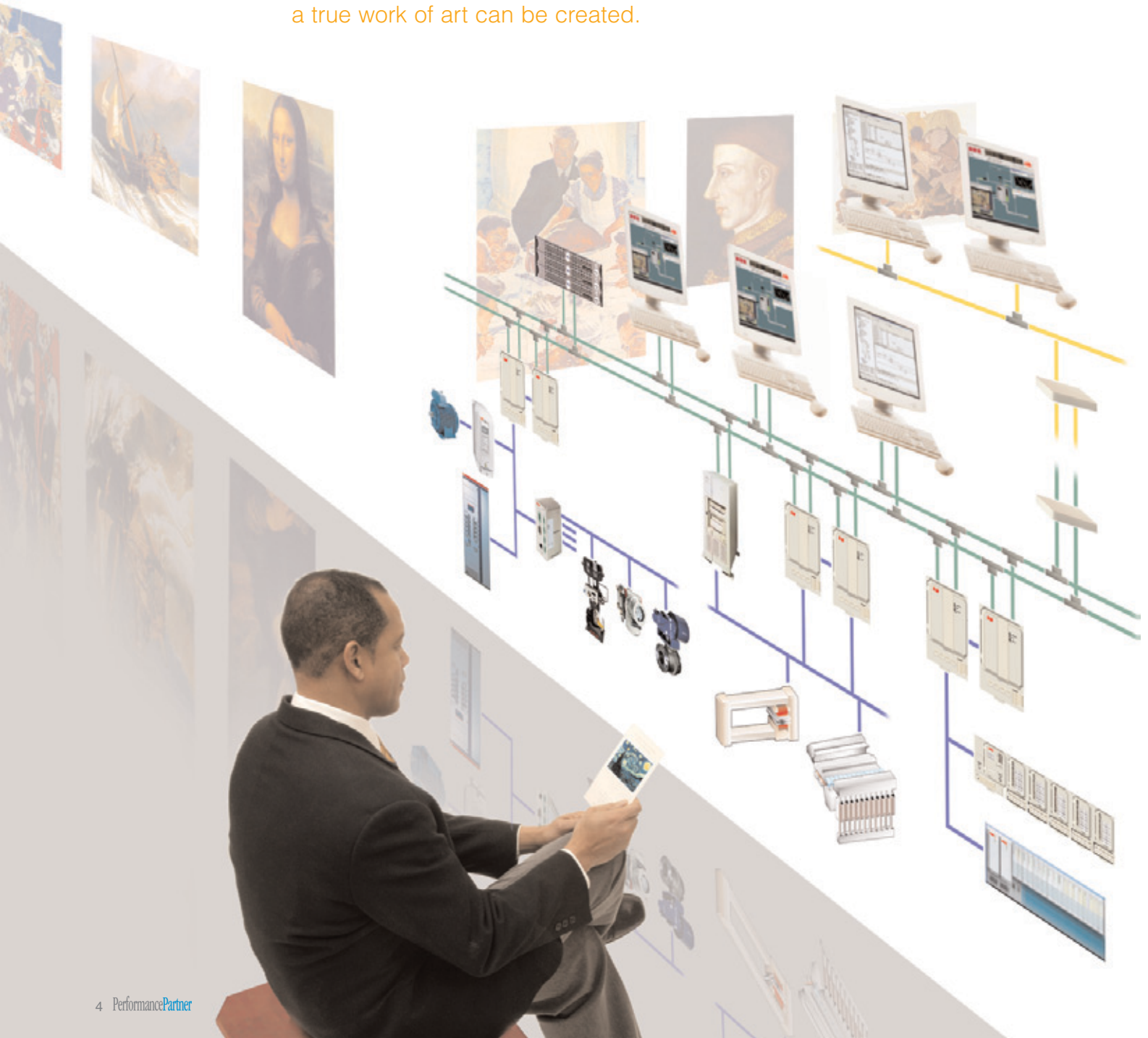
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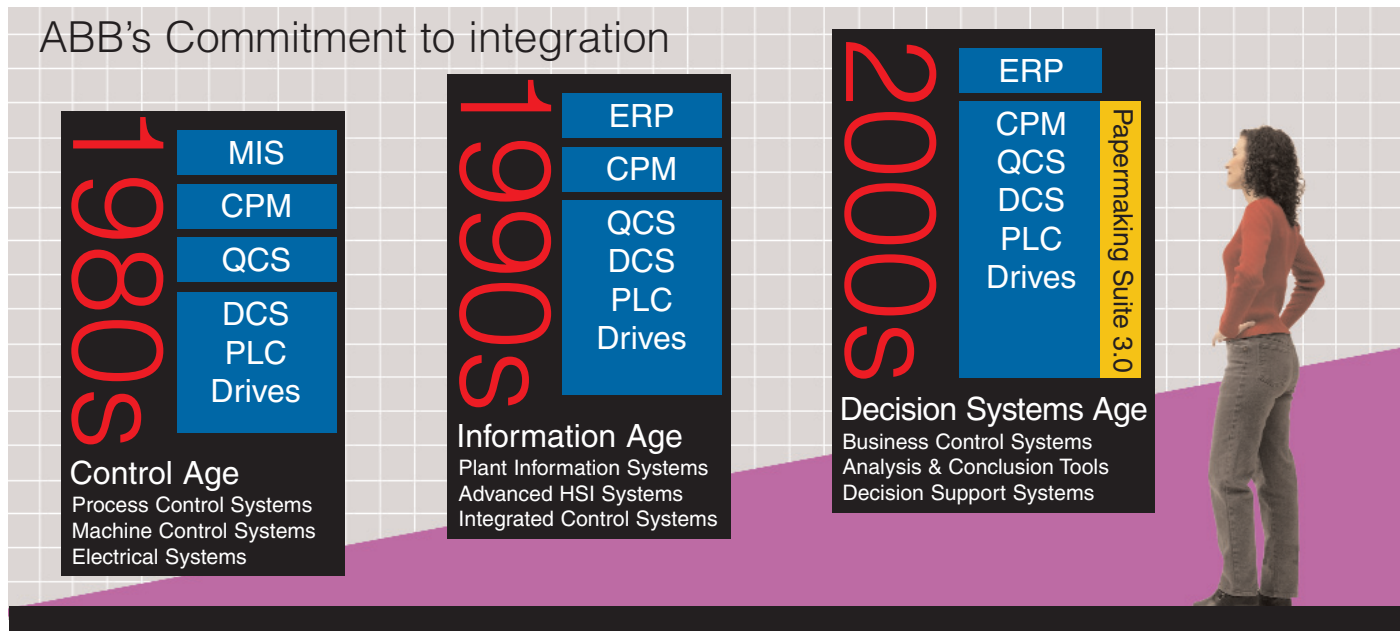
Redefining the art of Automation

ABB releases the most integrated solution

Fragmented data sources are like pieces of a puzzle. Even little pieces of a great work, are meaningless individually. If you took pieces from several works of art and connected them together, you could create a picture pretty? This same comparison applies to mills using best in breed and then connecting the technology via interfaces. However, by working with the full canvas and using the same pallet of colors, a true work of art can be created.



ABB's Commitment to integration



By seamlessly integrating systems in a common architecture, papermakers can achieve a complete solution. Only Papermaking Suite 3.0 ties together their automation, maintenance and production management systems.

Papermaking Suite 3.0 was formally introduced earlier this year and the first paper machine start-up took place in April 2004 at SCA (Barton, Alabama, USA), a greenfield tissue machine project. The new mill will have a single operating environment for DCS, QCS, Drives and Field Device integration, as well as advanced capabilities like Asset Optimization and sheet break monitoring.

Existing ABB customers can also benefit from Suite 3.0 advantages. By using the ABB Softcare and StepUp programs, customers can develop system evolution programs for all of ABB's previous generations of automation systems leading to Suite 3.0 level functionality. SAPPI Paper's, Ngodwana mill in South Africa has done that (see separate article in this issue) and are now realizing the benefits of a fully integrated automation system. Suite 3.0 not only delivers these systems in a common architecture but it also addresses unique requirements of the operations, management, engineering and maintenance departments.

Suite 3.0 delivers competitive advantages in five distinct areas:

- Performance Engine Advantage
- Project Execution Advantage
- Lifecycle Management Advantage
- Operational Advantage
- Enterprise Integration Advantage

Performance Engine Advantage – Papermaking Suite 3.0 is built on superior performance engines (products, solutions, applications) to ensure customers obtain the best in class performance from any of their automation components:

- Distributed Control (DCS)
- Quality Control (QCS)
- Web Imaging (WIS)
- Drives
- Advanced Pulping Applications
- Fieldbus Integration Technologies
- Asset Optimization
- Chemical Delivery and Coating Kitchens
- Collaborative Production Management (CPM)

Project Execution Advantage – Project Execution describes the entire design, installation and commissioning process. In each of these phases, the benefit of Suite 3.0 comes into play. By using common and advanced engineering tools from the design phase all the way through startup, papermakers can attain tremendous savings.

Lifecycle Management Advantage – The purchase, design and commissioning phase of an automation project is only the beginning and in most cases the least expensive phase in the life of a system. ABB's approach to lifecycle management ensures that the ongoing cost of maintenance and enhancement are minimized, while ensuring availability and performance for the investments are maximized.

Lifecycle management programs SoftCare and StepUp, ensure your system stays current. StepUp programs update a customer's classic solutions to IndustrialIT enabled solutions. SoftCare, ABB's innovative subscription program, combines traditional software upgrade program benefits with web-based hardware and

software support, enabling customers to take advantage of software enhancements in evolutionary steps to keep up with changing industry standards.

ABB further supports lifecycle management through our service organization. ABB has the paper industry's largest set of process automation, drives and full service experts. This global organization is available to not only repair and maintain equipment, but to optimize and continuously improve our customers' operating performance.

Operational Advantage – is focused on providing one user interface. Efficient operations on the machine floor are achieved in Papermaking Suite 3.0 by empowering the operator to make fast and optimized decisions. From one user interface an operator can interact with instruments, drives, motors, web cameras and QCS systems. He can view realtime or historized data, process data, profile data, images or streaming video of the process, all in a consistent and easy-to-use HSI methodology.

Enterprise Integration Advantage – All IndustrialIT products included with Papermaking Suite 3.0 are organically integrated with their common architecture and interface. More value is created by gathering additional information across the enterprise. Papermaking Suite 3.0 enhances integration to other systems by utilizing an architecture that is based on standards like Microsoft Windows® and OPC. This makes communicating, interfacing and managing data from third parties easier and more efficient. ■

Migrating for true optimization in South Africa

When Sappi chose ABB's Industrial^{IT} platform for their Ngodwana Mill, mill executives opted for an integrated platform that would optimize existing equipment. "We need to make informed production decisions, optimize our supply chains and have open access to useful information," says Sappi Strategic Projects Director, Andrea Rossi.

Although papermaker Sappi's tag line is "*the word for fine paper*," in South Africa, their country of origin, Sappi is about far more. Their Forest Product division, which last year accounted for 15% of group sales and contributed 36% to the group's operating profits, produces newsprint, containerboard, sack kraft and, above all, pulp.

Sappi's choice of ABB's Industrial^{IT} platform for their Ngodwana Mill, situated in Mpumalanga Province, not far from the Kruger National Park, was the result of the company's characteristic strategic planning.

Sappi Regional Strategic Projects Director, Andrea Rossi, says the ability to automate control, and obtain the right information to make correct decisions and manage a plant, is essential. "The high quality requirements for paper products today mean you can no longer work by the seat of your pants," stresses Rossi.

Importance of integrated platform solutions

According to Rossi, no one wants interfaces, so a papermaker's first choice is an integrated platform. "You say to yourself, I have a drive, I have a QCS system, I have got normal controls and I don't want to spend a lot of time on maintenance and fault finding in terms of interfacing all these platforms," says Rossi. "Once you have the integrated platform, it is natural that you migrate to a supplier that is in this business, has tried and tested algorithms and in particular, has advanced tried and tested applications."

He notes that automation is essential, not just to augment a skills shortage, but to optimize existing equipment efficiencies.

ABB's recent release of Papermaking Suite 3.0 is another sequential step in strengthening the values of an integrated solution even further. Sappi's new system and control solutions are fully compatible with Papermaking Suite 3.0 and all investments made will be fully re-used in future upgrades.

For Sappi, a very important criteria for potential suppliers was the ability to obtain local engineering service with world class parameters, as well as the ability to call on overseas experts if needed. Although Rossi acknowledges that there are other very good suppliers out there, he says ABB was ahead of the pack.

Sappi called in outside specialists so they could save time selecting process automation systems and ensure that the selected system would meet their future needs. They surveyed available local representatives to decide which company could provide the right engineering and service support and which was willing to hold a certain number of spares.

They wanted a supplier that continuously trained their own people, would understand Sappi's business and culture, and had specific roll out references in the pulp and paper industry with connectivity to other systems.

Rossi says that ABB had all these elements, plus their platform had all the right controls. "We had also just rolled out other ABB platforms at Enstra and Saiccor – for Sappi it was definitely the best technology," notes Rossi.

ABB's installations within Sappi in South Africa are extensive. DCS systems are installed at the Saiccor, Enstra, Usutu, Lignotech and Tugela operations. There are also QCS systems at the Ngodwana, Saiccor, Enstra, Adamas,





"Now when an operator starts up, he can look on the system and see what the optimum settings of the machine were when a particular product was made. This means less shrinkage, less time wasted and that is just the beginning," Stef Swanepoel, Mill Control Systems Engineer



Stanger and Tugela mills. ABB sectional and standard drives are in most of Sappi's mills.

The control system replacement at Ngodwana began in 2000 with a millwide study of the existing control system by an integration company called BeST. The installed base consisted primarily of Honeywell TDC2000 and TDC3000 for the HMI with Analogue I/O and control. Allen-Bradley PLC2 and PLC3 were used for digital high speed switching and motor control, and were hardwired to the Honeywell TDC system. Clearly, the existing control system was at the end of its life span without a well-defined upgrade path.

Having identified with ARC Advisory Group that ABB's Industrial^{IT} platform offers Process Automation & System Strategy (PASS) system for a lifecycle of 15-20 years, the mill began the upgrade process. Further motivation for installing the new automation system was the opportunity to achieve enhanced asset utilization, reduction in the total cost of ownership, and implementation of Sappi's enterprise optimization initiatives.

Enterprise integration key to project success

"It's not just DCS, it's drives, it's QCS, it's MES/CPM (Manufacturing Execution

Systems/Collaborative Production Management), it's interface to SAP System and it's PIMs (Process Information Management Systems) integration," observes Rossi.

Due to the large capital expenditure and resource-intensive requirements, Sappi decided to implement the DCS upgrade over a number of phases. SMS (Sappi Management Services) performed project management and a project organizational structure was created that included ABB, the instrument contractors and the mill.

Digester No2 on the pulp side, and the newsprint machine on the paper side, were identified for phase one of the DCS upgrade. On the recovery side of the mill, the evaporation No1 plant, and the chemical recovery furnace No1 were identified for Phase II.

Detailed engineering and digester upgrade set pace

Pre-engineering for the first phase of the project began in late 2001, and the project's scope was defined so detailed engineering -- which turned into a real team effort -- proceeded smoothly.

Importantly, the detailed engineering defined the way the new DCS would be configured, installed and operated. Sappi's Raymond Grobbelaar says that the detailed standards were developed in parallel to ensure that quality and

consistency would be maintained through all phases of the upgrade.

The DCS upgrade of the digester No2 plant, including, feed, cooking, screening and washing, also included the complete replacement of the TDC control system with all associated I/O Modules and cabling totalling more than 1,200 I/Os. The upgrade covered more than 40 new inline instruments, installed to ensure that the control base was ready for level II control implementation.

Digester No2 was successfully commissioned on schedule over a 14-day shutdown, beginning March 18, 2003. In parallel, the OSIsoft PI (Process Information) system was integrated with the new ABB Industrial^{IT} DCS equipment, allowing a seamless transition of historical data collection from the old TDC2000/3000 system to the new ABB Industrial^{IT} DCS.

Newsprint PM – teamwork delivers

The newsprint DCS upgrade was far more complex. In addition to the control system replacement with associated I/Os, all the old Asea Tyrak 8 drives with the DS8 controllers were replaced with ABB ACS600/DCS600 drives and AC80 controllers, and all the local operator stations were replaced.

Months of intense planning paid off when more than 2,300 I/O points were changed over in a nine-day shutdown in July 2003. "We commissioned and ran the systems prior to startup, which was no mean feat because we were doing two shutdowns simultaneously and to commission the DC drives you need the DCS system and vice versa, so it was kind of an egg and chicken situation together," said Nic Dreyer, Newsprint and Groundwood Production Manager. "But we had a good team that worked well together."

According to Dreyer, the start-up of the newsprint machine was testimony to the professional implementation by all concerned, with production going from 16% of budget to well over 75% of budget in just two days.

Meanwhile, phase two was also well under way and commissioning was completed at the end of 2003.

Starting the plant with the push of a button

"The fact that you can start the whole plant with one push of a button is great. There is much less room for operator error; you simply can't start it up in the wrong sequence," says the mill's General Manager, Marius Fischer.

Longer term, the mill can look forward to all the benefits of ABB IndustrialIT's real-time information connectivity. With IndustrialIT, each physical object in the mill becomes a unique software shell that bundles electronic product characteristics such as instruction manuals, drawings, control faceplates, configuration tools, etc., into a 'virtual' replica of the real component. Mill workers have mouse click access to the information required to install, configure, operate or optimize it.

The goal of this real-time information availability and organization is to enable better decision-making. At Ngodwana, an open control system automatically configures and rearranges mill instruments to the real-time needs of a new pulp or paper production run.

"It's not just about a new DCS system; it is much more than that," says Stef Swanepoel, the mill's Control Systems Engineer, of the newsprint changeover. "Now when an operator starts up, he can look on the system and see what the optimum settings of the machine were when a particular product was made. This means less shrinkage, less time wasted and that is just the beginning." ■

Portions of article first published TAPPSA Journal, January 2004.

The Great Lady – Kruger National Park

One of the largest wildlife preserves in the world, South Africa's Kruger National Park is also one of the oldest. Tourists today come to the 19,000 square kilometer preserve to see anything from lions, hippos, elephants and giraffes to monkeys and impalas. But the region has drawn people to its beauty and resources for years.

Evidence that humans have occupied the area in and around Kruger National Park for a thousand years stems from one hundred rock paintings and 300 archaeological sites.

The first European to visit the region, François de Cuiper, led a Dutch East India Company expedition. De Cuiper was thwarted after being attacked by local tribesmen. However Europeans and local farmers followed him, attracted by rumors of gold and by trade in precious goods such as ivory and skins.

In 1898, then president of South Africa, Paul Kruger, became concerned with conserving the area's wildlife. He urged the Transvaal government to establish a wildlife preserve to protect the region's many animal species. Kruger named 4,600 acres bordered by the Crocodile and Sabie rivers and the Lebombo and Drakensberg mountains, as the Sabie Game Reserve.

James Stevenson-Hamilton, a Scot, was appointed Sabie's head ranger in 1902. A man with vision and fortitude, Stevenson-Hamilton eliminated poaching on the reserve. Under his watch, Sabie expanded to seventeen thousand kilometers by 1905.

In the 1920s Stevenson-Hamilton recognized that wildlife preserves had tourist potential. When he learned that the South

African Railways had a nine day tour of the lowveld he immediately arranged an overnight stop at Sabie Bridge to be part of the itinerary.

Sabie was opened to the general public in 1927. Over the years it changed from an inaccessible expanse of wilderness with few camping areas and fewer roads to a well-run national park known for conservation.

Stevenson-Hamilton is recognized as the person most responsible for Sabie's remarkable transformation. On retiring in 1946 he likened Sabie to a Cinderella that, given its chance, had turned into a Great Lady.

In May 1972 the Sabie and Shingwedzi preserves were combined with 70 privately-owned farms and consolidated. The South African Parliament established the region as the Kruger National Park, one of the great game parks of Africa.

Known for its highly professional management, Kruger National Park currently offers one of the best wildlife viewing experiences in the world.

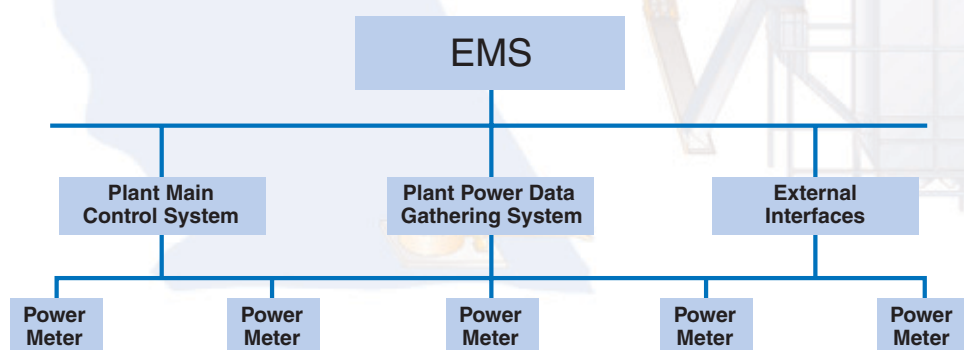
Recently, fences separating the Kruger National Park from the neighboring reserves – Sabi Sand, Timbavati and Thornybush – have been removed, allowing animals access to more resources and tourists increased access to the animals.

The Kruger National Park will soon be extended into a peace park to be called the Great Limpopo Transfrontier Park. This massive preserve will incorporate the Kruger National Park, the Limpopo National Park of Mozambique and the Gonarezhou National Park of Zimbabwe into a 36,000 square kilometer area larger than Switzerland.

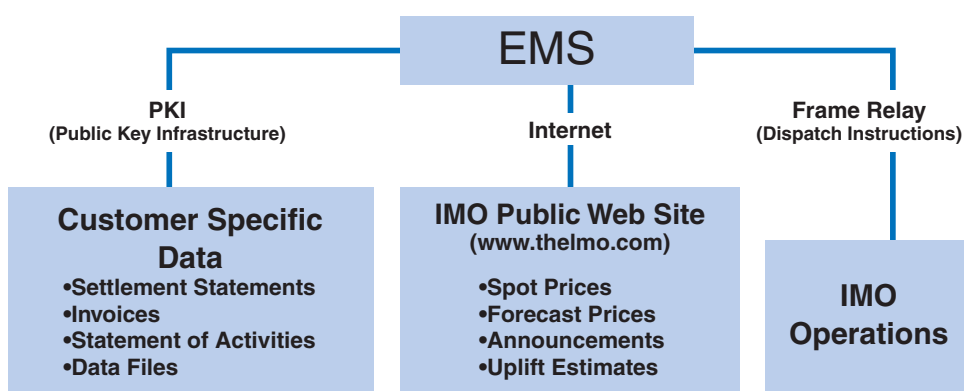


Energy management generates savings

Bulk power users in a deregulated power market environment are increasingly opting for the function of dispatchability to help them take advantage of the best possible prices when they buy power. Using this function, papermakers can target their power buys, minimizing energy expenses and obtaining rapid ROI on energy management system investments.



Standard EMS interface in a mill



Independent Electricity Market Operator (IMO) interface

In a deregulated environment, consumers have more than one energy supplier to choose from, giving them the advantage of buying power from whichever supplier will provide them with the best pricing terms. Deregulated market consumers also receive a breakdown of their energy costs, which helps them make informed decisions on power usage.

With deregulation, energy is like any other commodity; its unit cost increases or decreases according to the overall market supply and demand situation. In this volatile marketplace, proactive, timely decisions can save consumers thousands of dollars a day. Minimizing costs by using an energy management system is critical for industrial operations.

Technology creates opportunities for price reduction

Since an incremental improvement in the cost of energy can contribute to significant reductions in overall production cost, it's no surprise that the subject of energy management has gained priority for the managers of pulp and paper companies.

Many pulp and paper mills have implemented an energy management system (EMS). The use of an EMS is as old as the power turbine itself. This system keeps track of real-time energy data for the whole mill, forecasts millwide energy requirements, helps configure different contracts, generates bills, provides facilities to analyze real-time energy consumption data and provides optimized suggestions to purchase power from different suppliers.

Currently, EMS is used in many prominent European paper mills including:

- UPM-Kymmene - Pulp and paper
- StoraEnso - Pulp and paper
- Mayr-Melnhof - Board
- Metsä-Serla - Pulp and paper
- Metsä Botnia - Pulp and paper

Bowater uses EMS data to lower energy costs



ABB delivered the Bowater Thunder Bay EMS, which helps mill personnel make intelligent, cost-saving decisions in their power purchasing and consumption.

The Bowater EMS runs in Windows NT/2000 operating systems on a standard PC. A relational database (RTDB) is used as the platform and a graphical user interface (RTDB-Explorer) for operating the windows. RTDB provides a standard ODBC/SQL interface for the application to read and write data in the database. All the database queries are ANSI compatible.

At Bowater, the mill's internal power meter data is tapped from a dedicated power meter data gathering system.

Other real time data sources, such as the mill process control system, and mill main power bus control (i.e. tie-line control system), were connected to the EMS through different media following the standard communication protocols including:

- Serial Link (e.g. GCOM)
- OLE for Process Control (OPC)
- Open Database Connectivity (ODBC)
- MODBUS

To make the system even more useful, a dedicated interface provides access to data from the market operator (the Independent

Electricity Market Operator 'IMO' in Ontario) data, including Ontario power demand, spot price, expected demand, expected clearance cost per MWhr and different market reports.

Forecasting consumption

Merely collecting and processing energy consumption information does not make an energy management system an effective tool unless it can also forecast electricity and heat consumption information in a reliable and repeatable manner with minimum errors. The EMS processes forecast variables using calculation methods including time series function, neural networks and artificial intelligence, and integrates them into the system's database.

Dispatchable loads avoid price spikes

With ABB technology, Bowater can take advantage of the function of dispatchability offered by the IMO. Using this function, Bowater benefits from being able to bid in the power market.

The dispatchability function offers many advantages. It gives mills protection against occasional price surges, which significantly minimizes expenses. It also allows mills to offer different bids for their different con-

sumption levels. Bids are designed on the basis of pre-dispatch market clearing prices published by the market operator ahead of the dispatch operation, although for even greater maneuverability, they can be modified even up to two hours before the start.

During the dispatching operation, market operators instruct the load to start withdrawing its required power from the grid when it is within the price range mentioned in its bid.

ABB's load dispatch software module gives users a real time dispatchability function which allows them to eliminate their exposure to sudden power peaks and provides them with an opportunity to participate in the operating reserve market.

It makes good sense for bulk power users in a deregulated power market to seriously consider the load dispatchability option. For Bowater, real time dispatchability provides a great ability to participate in the Operating Reserve market of Ontario. The mill also minimizes exposure to different price peaks because the load is dispatched during intervals between price hikes. This factor alone plays a considerable role in reducing their energy bill. ■



One of the many EMS displays is the spot market price historical trend. The display also presents the actual power bought and its market value.

An inch of gold cannot buy an inch of time

There is nothing more precious than time. Cooperation lets new paper machine begin production a month ahead of schedule at Shandong Huatai.

In the fall of 2001, Shandong Huatai Paper Group decided to proceed with a complete new production line for their Dongying Mill in East China's Shandong province. Like earlier projects for Shandong Huatai, this project's delivery and installation would have to be on an accelerated pace to meet their startup requirements. This new paper machine would be 7,100 mm wide with a design speed of 1,800 m/min producing 250,000 tons per year of LWC/newsprint.

ABB's delivery included Industrial^{IT} OCS (Open Control System) solution, Drive^{IT} Drive solutions, INSUM, MCC (Motor Control Centers) and ABB's Cellier color kitchen. ABB's scope of supply included a full range of product-related services including commissioning, startup, installation supervision and training.

ABB's sectional drive control system would be used on the new paper machine and two winders. The system included ACS600 multi-drive, AC motors and software applications. Sectional drives include 690 V 12-pulse supply units to minimize harmonics in the mill's power network.

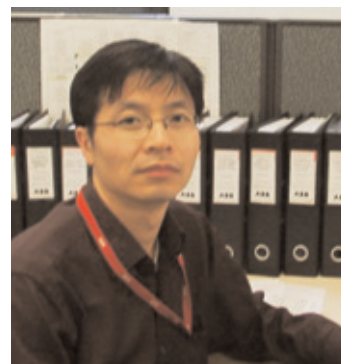
ABB's drive technology is well thought of at the Shandong

Huatai paper mill. In 2001, ABB rebuilt the mill's PM9 and a new winder that also utilized ABB drives.

ABB's Industrial^{IT} OCS system covers the whole paper production line from the deinking plant, bale pulpers, stock preparation, wastewater treatment, color kitchen and the intelligent motor control center (INSUM MCC). ABB's Industrial^{IT} OCS system has 4 AC450 controllers, 17 Operate^{IT} workstations, 6 servers and 2 engineering workstations, and controls over 8,000 I/Os with profibus technology.

ABB China delivered, engineered and commissioned the Industrial^{IT} OCS system, INSUM MCC and transformer. The paper machine's sectional drives and winder drives were jointly delivered and completed by ABB Finland and China.

Success on a major project like Shandong Huatai is always based on close cooperation between the mill and its suppliers. ABB, a major supplier on this project along with Voith, the Paper Machine OEM, were able to meet Shandong Huatai Paper's expectations with a successful startup one month prior to the original planned startup. ■



"We are always focusing on the customers in meeting their requirements, and gaining their trust. This close cooperation is the basis for the successes of this project and earlier projects for Shandong Huatai," said Jasson Li, ABB's project manager for PM10.



First Induction Profilers in Europe installed at UPM Voikkaa Mill

Papermakers are finding that the new Induction Profilers increase mill efficiency by delivering targeted heating to calender rolls. With the recent implementation of Induction Profilers in a UPM mill in Finland, European papermakers are experiencing this technology's superior control for themselves.

In September 2003, UPM's Voikkaa mill became the first paper mill in Europe to install ABB's Induction Profilers.

The mill upgraded to ABB's Industrial^{IT} Quality Control and Industrial^{IT} Web Imaging solutions on their PM11. The delivery also included the two Profile^{IT}

Induction Profilers as part of a Quality Control Solution.

Additionally, Voikkaa obtained a history database which mill personnel use to analyze disturbances. All data are linked to the mill's information system, ABB's Collaborative Production Management solution.

"One of the main issues of this project was to continue to update our automation technology," explained Juha Sipola, the mill's Automation Manager. He says the mill also benefited because they did not have to worry about replacing old system parts, which had become difficult to locate.

According to Sipola, the Induction Profilers are performing extremely well. "We have already seen that payback time will be very short," Sipola said.

Induction Profiler is designed to deliver very efficient localized heating to a calender roll, providing superior caliper CD control and better zone to zone resolution.

Power Modules and IGBT electronics generate high frequency alternating current output with very high reliability. Advanced work coils, 60 mm or 120 mm wide, deliver a smooth, even heating pattern on the calender roll, providing the highest zone resolution in the industry.

The actuator reduces off machine rejects and improves

caliper uniformity, reel building and sheet strength as well as printability. Voikkaa has experienced significant quality improvements and faster recoveries from sheet breaks.

According to mill managers, installation and startup were on time and successful. One factor behind the smooth startup: mill personnel were trained both before and after.



Stora Enso names ABB best supplier for Kotka project



Aimo Kettunen, Stora Enso's project manager

When Stora Enso Group's integrated forestry complex at Kotka, Finland, needed to expand the capacity of their PM2, they chose ABB as a supplier. After the project was complete, mill executives concluded that their selection of ABB was very much the right choice.

Stora Enso's Kotka PM2 produces magazine paper, particularly for four-color specialty magazines and sales catalogues. To be competitive, their product has to have strength, good optical properties, good printability and runnability. The magazine paper is produced from thermo-mechanical and other pulp for a basis weight 48-65 gsm, and it is coated and calendered using an online process.

Stora Enso wanted to increase paper machine speed while they continued to produce a high quality product. To accomplish this, the mill asked ABB to deliver direct drives for the entire production line.

ABB delivered a Direct Drive solution for Stora Enso's complete production line that included direct drives, drying, coating, re-drying, matt calender, and 42 conventional AC drives.

In addition to the drive system, ABB delivered a Motor Control Central for process electrification, transformers and motors.

The modernized machine started up successfully, on schedule, in October 2003. Metso

renewed the wet end and Voith Paper rebuilt the drying section and calender. PM2's production capacity was increased to 171,000 tons per year. Driving speed was increased by almost one fifth, to 1,400 m/min.

"Key persons in our project team visited the Äänekoski mill to see and hear about their experiences," said Aimo Kettunen, Stora Enso's project manager. ABB delivered the first Direct Drive solution ever to M-real's Äänekoski Mill in Finland in the fall of 2002. "They quite clearly felt that the solution worked well," Kettunen said. "They came back with positive thoughts and ideas."

At the close of the project, Stora Enso held a meeting to assess the work performed. Managers singled out ABB as the project's best supplier, saying that ABB took care of the installation and start up with great expertise. Stora Enso executives were so appreciative, they even presented an award to ABB's drive system project manager, Ismo Lankinen.

According to Kettunen, the outlook for PM2 is extremely positive, because the machine's performance has been excellent. "Once the drives were tuned on and adjusted, we had no disturbances whatsoever," Kettunen said.

New Industrial^{IT} orders

Austria

Brigl & Bergmeister has placed an order for an Industrial^{IT} Web Imaging System.

Brazil

PISA/Norske Skog, Jaguariaiva has purchased an Industrial^{IT} drive system including new technology ACS800 MultiDrives and automation upgrades for wet end upgrade for their newsprint paper machine.

Suzano/Bahiasul, Mucuri has ordered a Process Portal operator interface as part of a pulp mill automation upgrade.

VCP Luiz Anton has placed an order for an Industrial^{IT} Web Imaging System.

Schweitzer Mauduit Pirahy has ordered an Industrial^{IT} Web Imaging System.

Canada

Abitibi Consolidated has placed an order for an Industrial^{IT} Web Imaging System.

UPM Miramichi has ordered an Industrial^{IT} Web Imaging System.

China

UPM, Changsu Mill has placed an order for systems, equipment and services valued at over USD 12.5 million for their new paper machine scheduled to start up in the summer of 2005. This new PM will produce 450,000 tons of uncoated and woodfree paper annually. ABB scope includes electrification, a drive system with new generation ACS800 MultiDrives and the new Industrial^{IT} System 800xA Extended Automation Technology.

ABB will supply a drive system to Pan Asian, Hebei mill for PM1 and two winders.

Ningxia Evergreen Trading Co. LTD Yinchuan, has placed an order for an ABB Color Coating Kitchen for their new board machine.

ABB will deliver an Industrial^{IT} Web Imaging Solution to Sichuan Jinfeng mill.

Kook-Il Paper has ordered an Industrial^{IT} Web Imaging System.

Chile

Papeles Industriales has ordered an Industrial^{IT} drive system as a part of the tissue machine upgrade.

Finland

ABB will upgrade the existing Energy Management Systems at UPM's nine mills in Finland, delivered by ABB about seven years ago. The delivery is also an extension to the contract to supply an integrated Industrial^{IT} Energy Management and Optimization System to UPM's 10 paper mills in Central Europe during 2003-2005.

JuJo Thermal has placed an order for an Industrial^{IT} Web Imaging System.

Germany

Papierfabrik Adolf Jass GmbH in Rudolfstätt-Schwarza has ordered a Direct Drive solution and electrification for its new paper machine. The Direct Drive solution is the second in Germany.

SE Wolsheck has placed an order for two Industrial^{IT} Web Imaging Systems.

Lang Papier has ordered an Industrial^{IT} Web Imaging System.

Technocell Neustadt has ordered an Industrial^{IT} Web Imaging System.

Technocell Penig has placed an order for an Industrial^{IT} Web Imaging System.

India

ITC BDP, India has ordered an Industrial^{IT} Web Imaging System.

Italy

Cartiere del Garda has ordered an Industrial^{IT} Web Imaging System.

New Zealand

Norske Skog, Tasman Paper mill has recently placed an order for an Industrial^{IT} Drive solution for their PM1. It is a Direct Drive solution.

Netherlands

ABB will supply a new Industrial^{IT} Quality Control System to Mayr-Melnhof at their mill in Eerbeek. This system will be installed on their coated board PM3.

Crown van Geler has ordered an Industrial^{IT} Web Imaging System.

Poland

IP Kwidzyn has placed orders for three Industrial^{IT} Web Imaging Systems.

Russia

Neusiedler Syktyvkar has ordered an Industrial^{IT} Web Imaging System.

Spain

Saica has placed an order for an Industrial^{IT} Web Imaging Solution.

Sweden

Iggesund Bruk Holmen mill has ordered an Industrial^{IT} Quality Control System for their coated board PM1.

Thailand

Thai Paper Company has ordered an Industrial^{IT} Quality Control system for its fine paper PM1.

United States

Augusta Newsprint has placed an order for an Industrial^{IT} Web Imaging Solution.

Blue Ridge Paper Canton, North Carolina, has placed an order for an Industrial^{IT} Quality Control System for PM11.

Schweitzer-Mauduit, Spotswood New Jersey, has ordered ABB Industrial^{IT} solutions. The orders include an Industrial^{IT} Drives system and an expansion to the existing Industrial^{IT} Open Control System for PM14.

Stora Enso has chosen ABB's Industrial^{IT} Production Planning and Optimization solutions for its Biron, Whiting and Niagara paper mills. These CPM solutions are designed to provide mills with a platform to determine the best schedule across the available machines, based on current orders.

Mohawk Paper Mill in Cohoes, NY has ordered ABB Industrial^{IT} Solutions. The orders include an Industrial^{IT} Open Control System and an Industrial^{IT} Quality Control System for the paper machine.

ABB has received several Industrial^{IT} Web Imaging System orders in the U.S.: Augusta Newsprint, Domtar Nekoosa, Potlatch Lewinston, SE Duluth and Ahlstrom Windsor Locks.

Appleton Papers, West Carrollton, OH has purchased a Steam Profiler for PM92.

Bangkok forum on new technology draws impressive crowd

A recent ABB customer forum held in Bangkok introduced an enthusiastic group of attendees to new ABB technology.

More than 120 ABB customers from 31 area mills attended the two-day forum, organized by ABB Thailand and Singapore for ABB's pulp and paper customers in the Southeast Asia region. A senior management seminar held on the second day drew CEOs, managing directors and business owners from more than 15 pulp and paper companies.

The Bangkok customer forum launched the new Industrial^{IT} System 800xA Extended Automation Technology and Papermaking Suite 3.0 technologies in Southeast Asia. The 800xA sessions attracted a particularly large group of participants. Popular topics at these sessions included how to migrate from existing automation systems and how to benefit from new technologies.

A mini exhibit containing INSUM Smart MCCs, WIS, 800xA/Papermaking Suite 3.0 and cable termination technology attracted interest during session breaks.

The forum included common morning sessions for all participants, followed by break-out workshop sessions in the afternoon on topics that ranged from Distributed Control Systems and Quality Control Systems, to drives, electrification and maintenance.

It's been over three years since a similar conference has been held in the region, so at times the forum's atmosphere resembled a family reunion. Although the Asian financial crisis of the late 1990s put a damper on new investments, today the area's pulp and paper industry is on far sounder financial footing. Funds for upgrades, revamps and better utilization are increasingly available and industry watchers expect that this will soon translate into major new greenfield projects in Southeast Asia. Organizers felt that this turnaround helped fuel the enthusiastic interest from forum participants that led to the forum's success.



Hands-on seminars optimized for Brazilian papermakers



In March, ABB Brazil hosted a series of seminars at their offices in Osasco, Brazil, in the Sao Paulo area, for pulp and paper customers. The one-day sessions were designed to present Papermaking Suite 3.0 to the industry, and provide a hands-on opportunity to actually

work with these solutions.

Seminar participants were most interested in fieldbus solutions and asset optimization, two important areas for mills intent on improving their operations. ABB provides solutions that tightly integrate new fieldbus devices and monitor mill automation for potential problems, and both areas were explained and demonstrated.

Xceptional Swedish sessions

ABB Sweden invited pulp and paper customers from southern Sweden to a Papermaking Suite 3.0 seminar held in a one-of-a-kind old building in Växjö. Formerly a shop for repairing steam engines for trains, the seminar site is now a unique center called the Xperiment House, sponsored by several Swedish industries including ABB.

Over 50 customers from 13 mills, as well as members of the trade media, attended the seminar. Sessions covered Papermaking Suite 3.0 and ABB advances in automation technology including the new System 800xA. The highlight of the seminar was a presentation by Anders Carp of Saab Aero. His talk centered on the company's research for decision support systems used by fighter pilots and how ABB's Aspect Objects concept can be used in aerospace applications.

The seminar was followed by an opportunity to work with actual systems and discuss ABB solutions, including System 800xA, drives and switch gear integration, fieldbus integration, asset optimization, electrification, quality control, web imaging and pulp mill optimization.



Automation hasn't always been a pretty picture

Pieces



Puzzle



Perfection



Papermaking Suite 3.0

Introducing ABB's Papermaking Suite 3.0. Now papermakers can realize the advantage of a complete automation picture. A suite of automation and drives solutions built from a common palette of hardware and software that delivers your automation vision. Papermaking Suite 3.0: redefining the art of automation.

For the complete picture of Industrial^{IT} for Papermaking, Suite 3.0, go to: www.abb.com/pulpandpaper

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