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TRANSFORM YOUR WORLD
The Path Towards Asset Performance Management with the PI System and Ekho

Presented by Dominique St. Pierre Boucher Andrea Roy (Ekhosoft)
Presentation Overview

• Introduction to Kruger
• Business Requirements in the Paper Mills
• Phase 1 Installation - the PI System with Ekho
• Results Achieved
• PI System Software Being Used
• Phase 2 Installation - the PI System with Ekho
• Asset Performance Management
• Summary
About Kruger
About Kruger

- Established in 1904 with headquarters in Montreal (Quebec)
- 35 renewable energy power plants
- 5,000 employees (Canada + U.S.)
- 19 production sites
- 8 industry sectors
Business Requirements in the Paper Mills

- Kruger operates 4 integrated Pulp & Paper mills in Eastern Canada, producing around 1.4 MT of pulp & paper products annually
  - Brompton, Quebec
  - Corner Brook, Newfoundland
  - Trois-Rivières, Quebec
  - Wayagamack, Quebec

- Requirement for contemporary systems for real time information, to drive performance improvement initiatives
Phase 1 Installation

• Corner Brook Mill chosen as the pilot site for the initial installation.
• Chosen because of site complexity, with Woodyard Operations, Multiple TMP Lines, Multiple Paper Machines, onsite Co-Generation Facilities and nearby Hydro Power Plants
• Use of the PI System Infrastructure for real time data collection and analysis
• Use of Ekho software for Millwide Information and Reporting
Results of Phase 1 Installation

The PI System Infrastructure and the Ekho Application software were successfully installed within one year.

The combined solution was used to address:

- Production Data Collection and real time monitoring for all areas of the Mill
- Downtime data collection and analysis
- Traceability & Quality Data Management
- Reporting Overall Equipment Effectiveness
- Reporting Energy use and Energy generation across the mill complex
- Providing Management Dashboards, KPI’s and Reports
Real-time Monitoring
Event Viewer
Graphical Event Viewer
Production Status
Downtime Analytics
Quality Data Management

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**Production Information**

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**Quality Lab Manual Samples**

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<tr>
<td>Blancheur tete lab</td>
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<tr>
<td>Coating</td>
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<tr>
<td>Coating width</td>
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<tr>
<td>Coating coeff de friction diffuse</td>
<td>43.50%</td>
</tr>
<tr>
<td>Coating height</td>
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<tr>
<td>Coating width</td>
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<tr>
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**Autolab Sampling**

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<th>Value</th>
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Traceability and Genealogy
Overall Equipment Effectiveness
# KPI Drill Down

## CB - Line 2

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<th>Date</th>
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- **Quality (%)**: 80.14% 72.88% 83.97% 91.16% 112.26% 81.13% 77.65% 90.24% 90.81% 90.80% 93.16%
- **System Production (MVH)**: 231.9 232.7 290.3 318.2 396.7 287.4 293.1 326.4 315.1 343.6 332.6
- **Speed**: 97.31% 98.00% 97.45% 98.11% 98.68% 98.28% 99.30% 99.50% 99.50% 100.08% 100.00%
- **Total Last Time (%):** 10.00% 10.00% 10.00% 10.00% 10.00% 10.00% 10.00% 10.00% 10.00% 10.00% 10.00%
- **Total Rejected**: 10.00% 10.00% 10.00% 10.00% 10.00% 10.00% 10.00% 10.00% 10.00% 10.00% 10.00%
- **Total Scrap (MVH)**: 15.94% 26.25% 13.56% 8.75% 11.16% 17.33% 21.55% 25.22% 28.04% 31.83% 32.83%
- **Total Water Consumption (PVH)**: 221.3 230.0 288.3 316.9 380.1 282.6 235.5 316.3 308.3 343.4 220.5
Benefits Achieved

- Dramatic reduction in manual data collection and manipulation
- Significant increase of data accuracy and quality
- Move to managing with real-time information
- Ability to pinpoint problems before they became crises
Benefits Achieved (continued)

• Dramatic improvement of visibility of Downtime events and patterns, and associated production losses

• Ability to drill down and cross reference all forms of data

• Ability to relate issues in one area of the mill with problems in other areas of the mill

• Use of Mobile Devices for KPI’s and dashboards
OSIsoft product, component & subcomponent names

- PI API
- PI Coresight
- PI DataLink
- PI Developer Technologies
  - PI OLEDB
  - PI OLEDB Provider
  - PI ODBC
- PI Manual Logger (PI ML)
- PI ProcessBook
- PI SDK

- PI Server
  - PI Data Archive
  - Notifications

- PI Interface
  - PI Interface for OPC DA
  - PI Interface for Foxboro
  - PI Interface for Measurex
  - PI Interface for Universal File and Stream

Contd. on next slide
Re-Assessment before starting Phase 2

- Before proceeding to the other mills, a re-assessment of the requirements was completed.

- The scope was changed to include:
  - Standardizing all mills on the PI System. Other historians were in use in two of the mills.
  - Utilizing Asset Framework and Event Frames in the revised roll-out plan.
  - Extending the use of Mobile devices for KPI’s, Dashboards, and for Mobile Inspection Tours.
  - Increasing the focus of the combined solution on Asset Performance Management.
Current Status of Phase 2 for Wayagamack

- Agreement reached with OSIsoft for standardizing on use of the PI System in all 4 mills
- Initial deployment of the PI Server’s Asset Framework and Event Frames have been started
- Configuration of the Ekho software has been started to use the new PI System Software
- Mobile Inspection Tours have been configured in the Ekho software, for Smartphones and Tablets
- Plans are established for an increased focus on Asset Performance Management
Drill Down to Data in Event Frames
Mobile Inspection Tours

- Event Logger:
  - Observation Route List: Operator tour check list.
  - Quality Samples: Provides Automated and Manual Quality Samples

- Observation Route List:
  - 1/29/2015
    - State: Schedule
    - Type: RAW MATERIAL
  - 1/27/2015
    - State: In Progress
    - Type: UNSCHEDULED MAINTENANCE
  - 1/26/2015
    - State: Close
    - Type: UNSCHEDULED MAINTENANCE
  - 1/20/2015
    - State: In Progress
    - Type: NON-CONTROLLABLE
  - 1/19/2015
    - State: Schedule
    - Type: SCHEDULED MAINTENANCE
  - 11/13/2014
    - State: Open
    - Type: RAW MATERIAL
  - 11/13/2014
    - State: In Progress
    - Type: SCHEDULED MAINTENANCE
  - 11/14/2014

- Route Info:
  - Equipment Cause: CABLES
  - Integrator Reading:
    - TSI Sensor A233
    - 1.20
    - MD Valve X900
    - 56.70
    - TGD GE-400 Sensor
    - 120.90

- Safety Area Review:
  - Please review all surrounding area.
  - At Risk: NA
  - Check for visual damage: Good
History of Ekhosoft

• Founded as Inexcon Technology in 2000 (iTi)
• Focused on Process Industries and Renewables
• Software solution is called Ekho
• Application layer designed to sit on top of the OSIsoft PI System

• Ekho provides an integrated set of applications for Asset Performance Management.

• Company mission is to drive Performance Improvement initiatives and Increase ROI for our customers
Ekho Functionality Driven with PI System Data

Centerlining

RCA

Maintenance

Energy
The PI System Infrastructure

Enterprise Infrastructure

Trusted, scalable, secure, and reliable
**Summary Slide**

**COMPANY and GOAL**

Kruger operates 4 integrated Pulp & Paper mills and needed a system for real-time information, to drive performance improvement initiatives.

**CHALLENGE**

Gather production data in a complex environment

- 2 sites
- Complexity of the process
- Multiple systems to connect

**SOLUTION**

Broaden the use of the PI Server to gather data

- PI Server
- PI ProcessBook
- Ekhosoft

**RESULTS**

Better view of downtime and quality data

- 5% of downtime reduction
- Better identification of the impact of downtime in different parts of the mill
Contact Information

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Questions

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