PULP AND PAPER INDUSTRY

ASSETS OPTIMIZATION AND QUALITY CONTROL USING MULTIVARIATE DATA ANALYSIS

Multivariate data analysis (a.k.a. data mining) can be applied to turn historical data from pulp and paper mills into knowledge and actionable information to maximize yield and profits. Developing operation improvement solutions allows to continuously improve and maintain process performance and productivity.

METHODOLOGY

CanmetENERGY's multivariate data analysis software EXPLORE helps transform historical data into decisions and actions. These solutions lead to process operation performance improvement, thanks to:

- Increased understanding of operation and control
- Global process behaviour understanding instead of multiple parameters monitoring
- Accurate monitoring of Key Performance Indicators (KPIs), quality parameters and equipment conditions
- Soft sensors development for better air emissions monitoring and control
- Online identification of optimal operation conditions
- Online decision support system for variability reduction and fault diagnosis

BENEFITS

The approach leads to immediate benefits such as:

- Operator duties made simpler and easier
- Improved process operation stability
- Productivity improvement of 2 to 10%
- Energy savings of 5 to 15%
- Raw materials usage reduction of 1 to 5%
- Quality improvement of 20 to 50%
- Higher equipment run time

Canada

ADVANTAGES

Low cost solution:

No/low capital cost (typical return on investment period is a few months)

- User-friendly, Windows-based
- No need to be physically installed in the control room or connected to plant controls
- Easy to keep up-to-date and to take process and/or operation changes into account
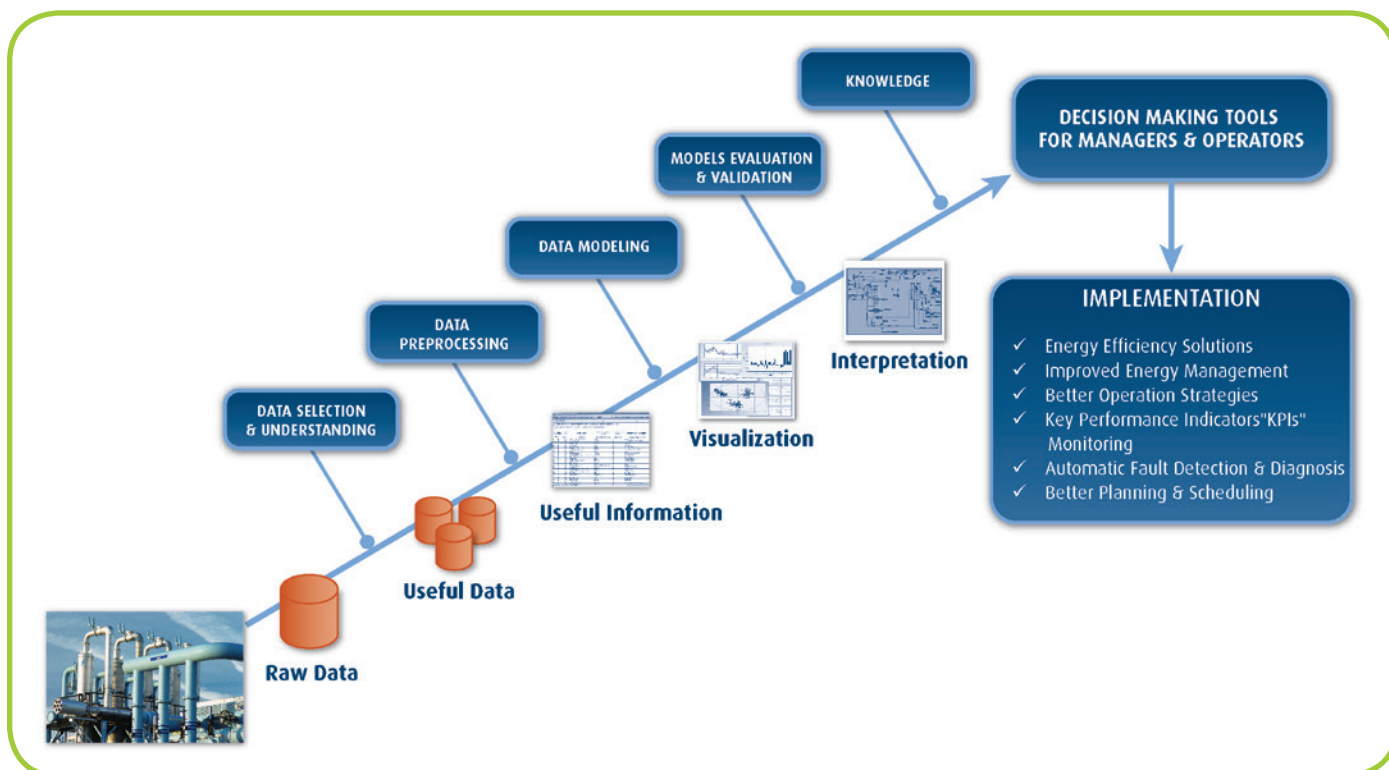
EXAMPLES OF APPLICATIONS

Boilers and cogeneration systems
- Steam and power production optimization
- Performance monitoring
- Soft sensors for emissions monitoring
- Fault detection and diagnosis

Paper/tissue machine
- Energy and quality optimization

Digesters
- Kappa number control and optimization

Refiners
- Specific energy use minimization
- Fiber quality maximization
- Steam production maximization

Others
- Products (pulp, fiber, dissolving pulp, etc.) characterization and analysis
- Virtual sensors for product quality monitoring