



More intelligent maintenance with BIG DATA ANALYTICS

By analyzing big data from a production line, it is possible to increase maintenance efficiency, improve availability and optimize maintenance costs. **TEXT** Marjaana Lehtinen

Valmet has a strong background in digitalizing production processes. The first sensors were installed in Valmet paper and board machines in the late 1980s and in the 1990s we embedded intelligence into production processes. 24/7 remote services have been available since early 2000.

“The new thing is that technological advances in software and hardware now enable us to utilize all this embedded intelligence much better and provide our customers with value-adding solutions. These allow our customers to improve their performance by utilizing integrated data for better benchmarking, predictive models and best practices, for example, regarding energy consumption optimization, fleet analytics and next-generation process applications,” says **Markku K. Salo**, Manager, Sales and Operation Development, Valmet.

Maintenance takes one step further

For maintenance operations, using big data means evolution instead of revolution. Today, mill-wide maintenance data is collected into ERP and other systems, enabling big data analytics. Data can be shared and utilized between various systems, which brings major benefits for maintenance management, planning and operations.

The amount of data available for maintenance management is now significantly larger as it is possible to collect, combine and analyze data from several sources, such as a stand-alone condition monitoring system, an automation system, a computerized maintenance management system and a cost control application, just to name a few examples.

“By analyzing all this data, customers can, for example, see predictions for how their equipment will function in the near future and what its optimal service intervals are. This makes maintenance predictive and enables its optimization. On the whole, this improves production line or process availability, saves

time and optimizes maintenance costs,” Salo explains.

Development projects with consumables ongoing

Valmet is currently carrying out development projects in which big data is employed to optimize the use of consumables in paper machines. One of the projects deals with roll surfaces. It combines roll grinding data from a stand-alone grinding machine with thousands of roll performance signals from a paper machine and with manufacturer information. By integrating all this data, it is possible to detect deviations and analyze roll condition in a totally new way.

“By better understanding roll performance and roll maintenance needs, it is possible to extend roll service intervals by 20% and thus extend roll run times. There is no longer a need to change a roll just to make sure that it will not break,” points out **Hannu Lähti**, Senior Paper Technology Manager, Valmet.

Through predictive modeling, Valmet can provide its customers with a weekly estimate on how long each roll can be run. “We have started big data analysis with consumables, such as calender and sizer rolls as well as wet end fabrics. There are plenty of other possibilities to utilize it, for example, in optimizing energy consumption,” adds Pekka Linnonmaa, Director, Paper Technology, Valmet.

Information for better decision making

To work on the big data collected from various systems, Valmet has a logical data warehouse for advanced analytics and analysis tools.

“By analyzing and processing the huge data volumes, we produce information that enables our customers to make better maintenance decisions for their own processes,” Linnonmaa concludes. ■

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