SPEAKER

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BIOGRAPHY
Mr. Leikas has 20 years working history in Pesmel. During his career he has been involved in various tasks in management, sales and engineering, and since 2011 Mr. Leikas has been Chief Executive Officer. His experience in sales combined with the firm technical background has given him a strong basis for leadership of the company.

Mr. Leikas has been a member of the management group of Pesmel over a decade. He is also Chairman of the Board in Pesmel Taiwan and a Board Member in Pesmel's other subsidiaries in Estonia, Sweden and Germany. Mr. Leikas is influencing the Finnish business and technology fields as Member of the Board in a regional Chamber of Commerce and in the Federation of Finnish Technology Industries.

LECTURE

Modern logistics inclusive of IoT with relevant case studies

Key pulp and paper mill processes
The pulp and paper mill processes – fiber preparation, papermaking and flow of finished materials – form a tricycle that works best when correctly balanced. In this instance, material flow means everything from the slitter winder deck to the mill's shipping dock. Of these three main areas, pulping and papermaking are process technologies proprietary to the paper makers whereas the finished goods material flow is often left with less attention. However, material flow-related conveying, packing, buffering and storing operations are internal logistics that are vital for smoothly flowing mill processes. Different to the paper making processes they demand a unique skill set of understanding and enhancing the in-mill material flows.

Role of in-mill logistics
The key to cost-effective internal logistics is a well-engineered system layout that moves products effectively, saves space and, at the same time, minimizes the amount of equipment utilized. To achieve a feasible system layout a vision of optimal logistics arrangement is required. And this is where logistics should be seen an integral part of the entire material flow from production to the end customer.

Enter internet of things
As important as individual processes are the connections between various functions and equipment, vehicles and buildings. Making these elements operate effectively as an integrated logistic system requires application of automation and data exchange using sensors, software and network connectivity. Smart factory, often referred to as Internet of Things, makes it possible to collect and exchange data between the various objects and to remotely monitor and control them. The collected data can be refined into usable form through analysis, and it is possible to create a variety of reports that help improve the mills' production and cost-efficiency.

A paper mill is full of sensors controlled by programmable logic controllers. IoT will make collection and analysis of data effortless where, for example, the service department can use IoT software to identify and anticipate the need for spare parts and maintenance. Using smart factory applications maintenance schedules can be planned well in advance and the personnel no longer needs to constantly make laborious inspections. This has a favourable effect towards lowering of operating expenses and ensuring the reliability of the entire process.

The vision
Internet of things is also very much present in the control of Pesmel's automated logistics and high bay buffer system for pulp mills, named TransBale. The vision for the future of TransBale is ambitious: it is a system that is tightly integrated into the entire logistics process, taking advantage of Industry 4.0 technologies to communicate intelligently with business management systems at pulp mills, as well as with the logistical systems in harbors. There are also possibilities to take full advantage of innovations such as real-time tracking that utilizes GPS and RFID tags. This means that the exact location of every single bale is known at all times. Every unit and shipment can be tracked, and information will be passed to systems downstream in the logistical flow at exactly the time it is needed. This will also lead to more efficient routing and utilization of transport vehicles.