SMART WOODYARD

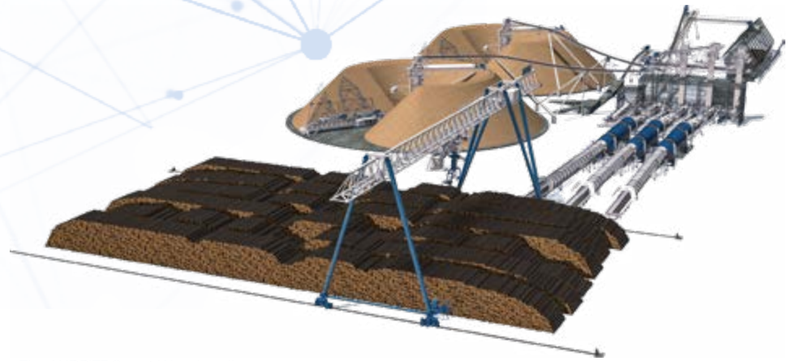
Autonomy as a side product

Utilizing deep process knowledge and with many years of successful deliveries to woodyards around the world, the ANDRITZ Smart Woodyard has combined all its experience with the latest in IIoT technology. The result is an ongoing revolution of the woodyard.

AUTONOMOUS SYSTEMS
Autonomous operation of wood processing systems

OPTIMIZATION SYSTEMS
Optimizing process & equipment performance, production, and profitability

DIAGNOSTICS SYSTEMS
Process and equipment diagnostics, condition monitoring, and prediction



The ANDRITZ Smart Woodyard's concept and product portfolio are based on three levels of intelligence.

Digitalization of the woodyard is nothing new – ANDRITZ provided various platforms and technical solutions using digitalization for a number of years in its constant efforts to help customers to save wood and increase yield. In fact, the woodyard is an area in which ANDRITZ has vast experience for pulp and paper customers, but also in MDF and biomass power generation applications – indeed, ANDRITZ has woodyard operations running through its veins.

Wayna Moncada, Director Wood Processing Digitalization, ANDRITZ, says, "Lately the autonomous woodyard has become something of a goal, along with the autonomous fiberline and autonomous drying area. But digitalization is about much more than autonomy; it's about what the customer really wants and needs: harvesting the right wood, getting better yield from wood, getting the best quality pulp, maximizing uptime, and predicting shutdowns.

"Once we get these right, autonomy simply comes as a side-product."

Moncada says having a woodyard running successfully means first decreasing the variation across the board. "This variation could be in the size of logs, the species, how the inventory is managed, or dry wood mixed with wet wood. All these examples are where there is a possibility of wood loss or interruption of woodyard processing.

"If you have variation in the woodyard, ultimately there is loss of yield, as well as production interruptions, and when fluctuations are high, there is usually one problem after another and it is just a case of where the next problem will arise. In a smart mill, where variations are minimized, you are always ahead of any upcoming problems. In other words you will never chase information, information will always chase you."

"The economic benefits of a smart woodyard can be huge," says Moncada. "There are wins from better yield, better quality products, less stoppages, and higher uptimes. There is also the opportunity to better predict maintenance issues and ultimately the woodyard is easier to operate, meaning you don't need highly skilled operators constantly in place.

"Another major benefit of a smart woodyard, with variation minimized, is the safety aspect. Less stoppages mean less operators going into the danger zone to unblock the bottlenecks."

THREE LEVELS OF "INTELLIGENCE"

ANDRITZ Smart Woodyard's concept and product portfolio are based on three levels of intelligence; the floor level, which covers a wide range of individual smart products including machine and process diagnostic devices, for instance, a ChipperEKG, or ChipSCAN; the second level is optimization systems for sub processes, which contain lower-level products; and the third level contains autonomous systems, which are built with lower level optimization systems or with dedicated technology such as in the autonomous crane system.

The levels and systems within the Smart Woodyard portfolio have an emphasis on modular, upgradable products with futureproofing firmly in mind. Applications are suitable for both greenfield and existing woodyards.

"As a starting point for an existing mill, the customer really needs to understand its woodyard operation," says Moncada. "Customers need to identify where they have the most hold ups and we can provide the right module for that particular area.

"We are quite aware that total autonomy cannot take place all at once at existing mills, so with a modular approach a mill can solve one problem area and then add on another module later. We can then tie in each island as the evolution of the woodyard takes place."

SMART WOODYARD – REFERENCES AND ORDERS

ANDRITZ Smart Woodyard has many references globally and has vast experience of providing successful solutions for woodyard operations. Recent deliveries include woodyard solutions to Bracell, Brazil, and Arauco's MAPA project in Chile.

ANDRITZ recently received two Smart Woodyard orders from Metsä Fibre for its bioproduct mills in Finland, Äänekoski and Kemi:

Metsä Fibre Äänekoski signed a three-year contract with ANDRITZ for debarking process optimization using smart instruments enhanced with oversized chip and bark content in chip flow detection equipment. The agreement will operate under the ANDRITZ Synergy model for the mill's three debarking lines.

Metsä Fibre Kemi, has ordered two fully autonomous logyard cranes for its planned mill in Finland. The cranes will be the first autonomously operated logyard cranes in the world, and will feature artificial intelligence to optimize log handling and minimize wood losses.

BENEFITS

The emphasis of smart solutions in wood processing is to optimize the whole operation using the latest technologies. The main focus areas are:

- **Getting the most out of wood raw material**
- **Best possible chip quality**
- **Increased availability:** Increased production line efficiency
- **Situation awareness and predictability:** Real-time and transparent production awareness through decision support walls and smart mobile devices
- **Improved safety:** Automated woodyards mean less operator interaction is required

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