Digital plant model in Germany: Industry 5.0

The world is on the cusp of Industry 5.0, with people working closely with artificial intelligence, robotics, the Internet of Things, digital twins and virtual reality to improve work processes and make them more sustainable. With real-time data transmission, it is possible to know what is happening in the plant at any moment - from the start of the production line to dispatch.

Everything on one platform

In the digital plant, there are over 2,000 process variables that help to explain the main key performance indicators in a drill-down approach, from global to individual ones, visualised in Pareto diagrams. With a customized tool, this data is available to all decision-makers at any time via a single platform - from the control room to the cell phone. The tool, called Digital Plant Viewer and complemented by "Smart Notifications", also relies on the power of artificial intelligence to interpret the data and issue alerts when performance is outside the ideal parameters: in addition to sending a notification to the mobile phones of all those responsible when this happens, it automatically initiates a chain of reactions after a defined period, which can range from a small adjustment to stopping the line.

Following four industrial units in Iberia, Nettgau is Sonae Arauco's first plant in the NEE region of Germany operating in a digital format approach. This new level of digitalisation at the Nettgau plant enables Sonae Arauco employees to react to problems at an early stage and have a digital version of the plant always updated, including on their smartphones.Sonae Arauco is gradually aligning its factories with this industrial vision.

Now the manufacturer has transformed its first plant in Germany, the Nettgau site, into a digital plant, a format that provides an extensive and relevant set of data in real-time to support decision-making.

After a few months of use, it is possible to validate the main benefits of this model. The digital plant makes it possible to work with accurate information in real-time. Thanks to this easy access to data at any time and the correlation of the different process variables, our specialists can now focus on their areas of expertise, on planning and on solving problems."We're talking about a reduction in bureaucracy, since there's no longer any need to enter data or calculate Pareto ratios manually, a more accurate daily analysis, with the data being used in practically every meeting, and a shorter response time, which translates into faster and more effective problem solving."

Hand in hand with artificial intelligence

The digital factory pays off for Sonae Arauco in several ways. It helps to identify organisational improvements, increases the reliability and service life of the systems, reduces downtimes, optimizes costs and even contributes to more free time by reducing bureaucracy. In the past, data had to be recorded manually; today, business information can be centralized and displayed on an online platform.

Angel Garcia Bombin, Industrial Digital Transformation Director, whose team is responsible for developing the concept of the digital plant and implementing it at Sonae Arauco's various sites, explains: "The digital factory is changing the way we work. We can receive information in real time and react immediately to unforeseen events. State-of-the-art technologies and human intelligence are closely interwoven and thus offer the greatest possible benefit. This puts us on the direct path to the age of Industry 5.0."

For several years, within the context of the wood-based panels industry, Sonae Arauco has been leading the digital transformation, a journey started in 2015 that has been inclusively recognized externally. In 2019, the company was distinguished with the Best Digital Transformation Enterprise Europe award, for evolving from a traditional model to a digital business one.

The digital plant is another important milestone in this evolution, adding to other relevant projects, namely in the area of predictive maintenance. Currently, the operations of the majority of Sonae Arauco factories in different countries are equipped with sensors to monitor aspects such as vibrations, temperature and amperage. Artificial intelligence interprets the data, determines the best time for maintenance and sends alerts in the event of anomalies. Thanks to continuous data monitoring and the autonomy of all those involved, reactions to potential problems are much faster and error times are significantly reduced.