THE JOURNEY FROM TRANSPARENCY TO INTELLIGENCE

Applying Industry 4.0 Principles in SONAE ARAUCO
Sonae Arauco is one of the biggest producers of Wood Based Products.
With factories in Germany, Spain, Portugal and South Africa
Sonae Arauco presentation

Our products are sold in 75 countries
Our factories have high level of automation, working 24/7 with a continuous process
Roadmap i40: The journey from Transparency to Intelligence
Roadmap i40: From Transparency to Intelligence

Source: Fraunhofer Institute
Apps developed (Transparency level)
Apps developed in SONAE ARAUCO (Transparency)

Creating the Industry 4.0 Network
Apps developed in SONAE ARAUCO (Transparency)

Towards the Digital Twin of the Factory. Great tool for root cause identification

- Change weight from 8 to 9 Kg/m2
- Reduce press speed too late!!!
- Starts blisters and press stops
Apps developed (Interaction level)
Apps developed in SONAE ARAUCO (Interaction)

Integration with Lean Manufacturing. KPI’s in real time
Apps developed in SONAE ARAUCO (Interaction)

Alarms and Factory KPIs to smartwatches and smartphones on real time
Apps developed in SONAE ARAUCO (Interaction)

Smart Notifications. Examples: In the change of production and during production
Apps developed (Intelligence level)
Apps developed in SONAE ARAUCO (Intelligence)

Complete Machine Learning cycle: From model to Production (on line)
Apps developed in SONAE ARAUCO (Intelligence)

Real time properties prediction using Machine Learning
Apps developed in SONAE ARAUCO (intelligence)

Based on IIoT (Industrial Internet of the Things) and Edge Computing

Hiperconectivity

Connection to CMMS and ERP with automatic Work Orders

Edge computing
- Vibration
- Elec. Current
- Temperature
- Oil condition

Cloud Platform

Failure detection:
Step1-Based on Expert Knowledge
Step2-Based on Advanced Analytics (Machine Learning)

Data collection and alarms

Predictive Maintenance

- Vibration
- Elec. Current
- Temperature
- Oil condition
Apps developed in SONAE ARAUCO (Intelligence)

Step 1 - Failure predictions based on vibrations and Expert Knowledge
Step 1 - Failure predictions based on online oil analysis
Step 1-Failure predictions based on online oil analysis. Real installation.
Apps developed in SONAE ARAUCO (Intelligence)

Step 2- Anomaly detection. Example in the refiner
Apps developed in SONAE ARAUCO (Intelligence)

Temperature (°C) 427M01 Press belt

Step 2-ML applied to failure detection: Real vs predicted motor temperature. Motor OK
Apps developed in SONAE ARAUCO (intelligence)

Temperature (°C) 427M01 Press belt

Prediction
Real

Failure

Early detection

Step 2- ML applied to failure detection: Real vs predicted motor temperature. Motor failed
We are sure these apps give Super-Powers to our workers...

...so we encourage you to introduce the Industry 4.0 in your company.