How Will Digitalization and Automation Change the North America Woodworking Industry?
PELICE 2018

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Mega-Site Structure by Region (Q2 2017)

Eastern Europe
- Small (<500k m³): 37% (sites # 121)
- Medium (500-1000k m³): 35%
- Large (>1000k m³): 28%

Western Europe
- Small (<500k m³): 8% (sites # 97)
- Medium (500-1000k m³): 52%
- Large (>1000k m³): 40%

North America
- Small (<500k m³): 37% (sites # 98)
- Medium (500-1000k m³): 63%
- Large (>1000k m³): 8%

Source: Pöyry PLC
Wood-based Panel Production – that easy?

1) Chopping
2) Flaking
3) Drying
4) Grading
5) Cleaning
6) Glueing
7) Forming
8) Prepress
9) Pressing
10) Aclimating
11) Trimming
12) Sanding

Improve the interaction by automation upgrades
System Configuration Today
From Single Machine to Process / Plant Control

**Single machine control**

§ Few operators in front of many screens
§ No overview of the process

**Process/plant control**

§ Process key figures at a glance to optimize plant output
§ Better and faster control reduces costs

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![Image of single machine control](image1.png)

![Image of process/plant control](image2.png)
Technology Behind it – Components

- CLX 5580
- Drivers Energy meter
- CIP-Motion
- 3AC Motors
- 5069 Compact I/O
- Standard sensor
- Digitally linked sensor
- Database
- Visualization (HMI)
- Digitally linked actuator
- Powerflex 755
- Fully digital communication to all smart devices

All that allows sufficient latitude for innovative process controls

Reduction of cycle times (by factor of 10-20)

Comprehensive networking of all components with almost unlimited bandwidth

Fully digital communication to all smart devices

Reduction of cycle times (by factor of 10-20)
Forming Station – Spreading in Sequence

- Savings of raw material and resin
- Faster production start, faster product change, less downtime
- Existing equipment can be used/modified
Automated Product Change

- Minimum changeover times and material losses
- Diversity becomes controllable by administration of production recipes
- Reproducibility of quality is ensured
- All process parameters correspond with the correct recipe right from the start of a new production
Multi-Opening Presses

- Modern drives with encoder
  - Faster and more precise positioning of screens (approx. 1 - 3 seconds)
  - Faster positioning of the loader (approx. 1 second)
Connectivity – Support for Daily Life

- Motion counter
- Motion over time recording
- Link to other sensors (bathroom scales)
- Health monitoring system
- Heartbeat sensor
- Blood oxygen sensor
Big Data

- Advanced process analytics
- Process optimization
- Predictive maintenance
- Advanced device analytics

Source: USU Software AG
Big Data

**Time Series Analytics**
Prediction of component life span

**Outlier Detection**
Find outlier in data streams

**Anomaly Detection**
Is something abnormal?

**Event Chains**
Root-cause relationships

Source: USU Software AG
Big Data
Connectivity in Your Plant

- Example: Idling dryer (forgot to shutdown or avoiding need to restart)
- Consequence: Specific energy consumption is increasing
- Solution: Transparency and awareness!
Speedometer
Smart Monitoring

- Datasheet, manual
- Maintenance instruction
- Explanatory film
- FAQs, trouble shooting

- Electronic spare part catalogue
- Check lists
- Safety documentation
“Hey Jakob…

… show the overview of the dryer area!”

… filter alarming for hydraulics!”

… any hints for process optimization?”

Jakob can answer with over 170 years of experience!