Digitalization – How artificial intelligence can improve plant performance

G. Ruppert / IAOM Dubai

Innovations for a better world.





What is artificial intelligence (AI)?

Artificial Intelligence (AI) Machine mimicry of human behavior.

Machine Learning

Part of Al Data analytics methods and techniques, to interpret the data.

Deep Learning Kind of Machine learning Solves more complex problems.





Machine Learning



Deep Learning Decision Trees/ Classification/

.....







Al framework.

Turning data into valuable information.



Recommendations:

- Process settings
- Operations optimization
- Predictive maintenance



Data Science:

Statistics

AI

Machine Learning



Data collection:

- Historical Performance
- Yield, Quality, etc.

Data coming from:

- Machine
- Sensors
- Plant control



Actionable

Insights

High Quality Process Data



Example 1: Safefood.ai Food safety risk monitoring.

- Real-time information from hundreds of sources, including social media and food safety authorities
- Customizable news stream and email alerts on food safety threats, incidents and solutions for the market.
- Provides patterns and insights that are difficult to obtain manually.
- 4 days ahead of mainstream data.



Development of a Mill.







Smart Mill Level 1.



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Automation solutions. Basis for the Smart Mill.

Plants running without personnel up to 36 hours while providing smart features like:

- Recipe management
- Production scheduling
- Traceability
- Maintenance
- Etc.



Smart Mill Level 2 & 3.



Setup of an IoT platform including cloud usage.





Example 2: GrainiGo.

Al to estimate milling yield for maize with a smartphone.



• 30x faster and a higher accuracy thanks to deep neural networks.



Example 3: Parameter analysis Yield, quality, downtime, etc.

- Long-term data analysis
- Correlation of process related data
- Anomaly detection with the usage of algorithms
- Actions proposal in order to increase plant performance through e.g. **yield increase**



The value of data.





The mill of the future will be digital so that we can call up production data at all times.

Smart Mill Level 4.



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Future outlook.



Thank you for the attention!





