Milling Rebooted
*Doing the unimaginable with data*

04/12/2018
Data Science

Machine Learning & Artificial Intelligence

1997 DeepBlue 2011 Watson 2016 AlphaGo

What about Grain Milling?
By 2020, component costs will have come down to the point that connectivity will become a standard feature, even for processors costing less than $1.

*Peter Middleton, Gartner*
2020

4 BILLION
Connected people

$4 TRILLION
Revenue Opportunity

25+ MILLION
Apps

25+ BILLION
Embedded Systems

50 TRILLION
Gb of data
IoT is about connected devices, big data and data analysis
Just some of the application areas with huge potential and rich capabilities:

- Smart Living
- Smart Cities
- Power and Environment
- Industrial
- Smart Transportation
- Wearables
IoT and Big Data.

The Internet of Things (IoT) and Big Data open new ways to optimize your mill performance and production efficiency.

The technical basis are intelligent and digitally networked systems that enable a largely self-organized production: People, machines, plants, logistics and products communicate and cooperate directly.
"The global industrial sector is poised to undergo a fundamental structural change akin to the industrial revolution as we usher in the IoT. Equipment is becoming more digitized and more connected, establishing networks between machines, humans, and the Internet, leading to the creation of new ecosystems that enable higher productivity, better energy efficiency, and higher profitability. The IoT has the potential to impact everything from new product opportunities, to shop floor optimization, to factory worker efficiency gains that will power top-line and bottom-line gains."

— Goldman Sachs
IIOT

Industrial Internet of Things

50 Billion connected devices by 2020
– Cisco

50% of connected devices deployed between 2015 and 2025 will be industrial
– IHS Markit
Why are we here?
How can data science help?

- Process Data
- Weather Data
- Raw materials data, Safety alerts

Data Science & Machine Learning

Increase transparency

Identify actionable insights

Yield
Historical Performance
Recommendation of Process Settings
Global processing industries have reported losing $20 billion USD each year (or nearly 5% of their total production) due to unscheduled downtime, 80 percent of those losses are preventable.

ARC Advisory Group
We’ve all got issues
What’s eating your profitability?

Lack of process transparency
- No real time view
- Delayed decisions
- Inefficient processing

Product quality
- Food safety – FSMA
- Product recall
- Human resources for documentation / logging
- Non-uniform or out of spec product
- Rework
- Wasted product (and energy)

Asset utilization
- Irregular maintenance
- Unscheduled downtime
- What’s the actual uptime?
- Are all shifts operating the same?
- How much energy is the dryer consuming?
How can you reach the target?

*The conventional way:*

1. Technologist
2. Inspection of mill
3. Recommendation (settings, change spare parts…)
4. Increase in performance
How can you reach the target?

The new way:

- Permanent monitoring
- Recommendation (settings, change spare parts…)
- Increase in performance
Data Science basic concept

Success formula

Process data x Real time data analytics x Process knowledge = Improvement
It is secure … here’s how.
Summary

- Bühler IOT solutions are secured with industry standard security practices
  - Cloud end leverages all the resources of Microsoft security experts
  - Device end is managed by a secure Bühler Gateway
  - All data is encrypted for transmission
- We review our solutions and process regularly internally and externally
- We are working toward ISO27K (International standard for information security management)
Thank you for your attention!