

Carefully milled, expertly delivered

**Whitworth Bros.Ltd.**

FLOUR MILLERS





# Mercury MES: A Masterpiece, tailored to Grain and Food Operations

Why having the right foundation is key to optimize Business Operations?  
And, What does it mean to Carrs and Whitworth?

Carrs and Whitworth now adjust process parameters remotely, ensuring consistent quality and reducing manual intervention

Production sequences are optimized for the highest energy efficiency, ensuring minimal waste and maximum savings

Every lot is fully traceable from raw material intake to final packing, reducing compliance risks and improving transparency

Process Optimization

Data Generation

Energy Efficiency

Quality Data Centralization

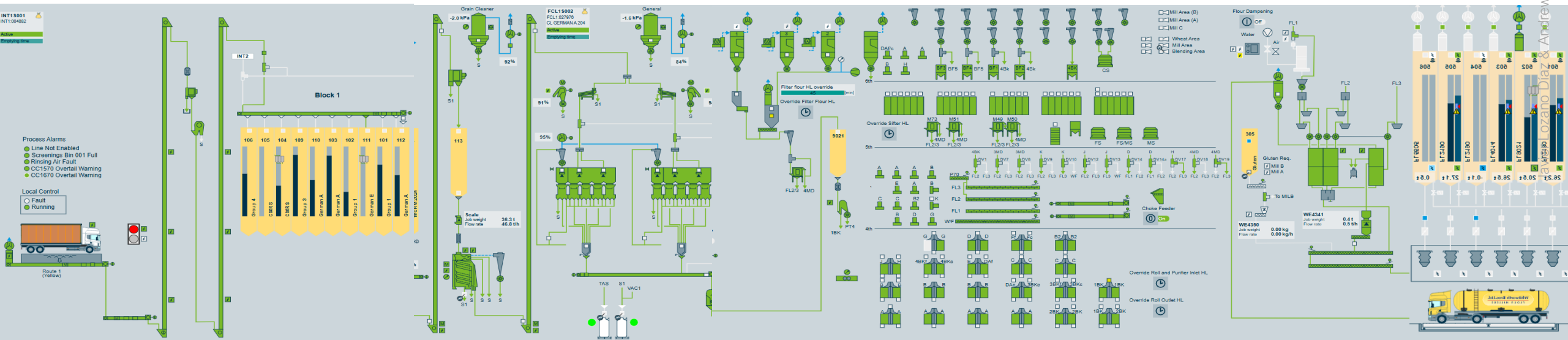
End-to-End Traceability

Production Scheduling

Seamless job, recipe, and stock management enables real-time production tracking and accurate reporting

All quality data is now connected in one system, ensuring data consistency and better decision-making

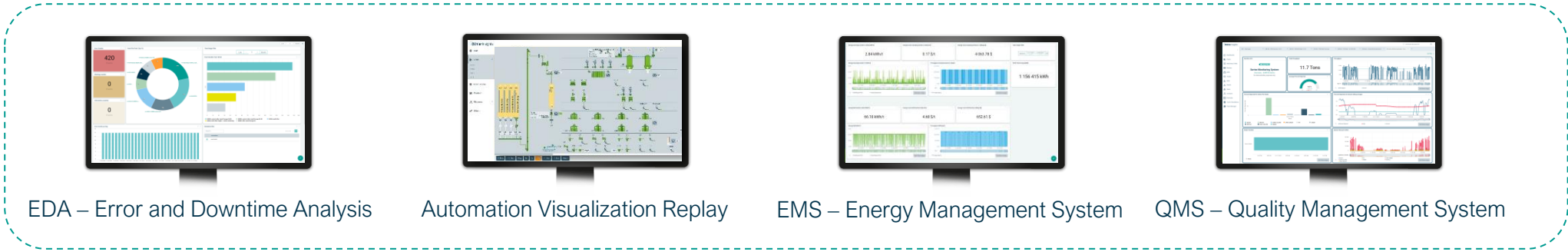
Automated job queue generation has optimized resource allocation, minimizing downtime and improving responsiveness



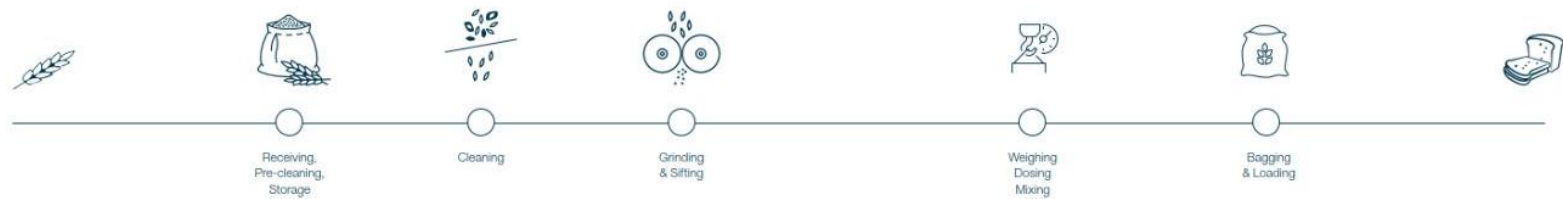
# The power of Digital Automation + Data Analytics

## Use cases for Performance Optimizers

### Operations Optimizers

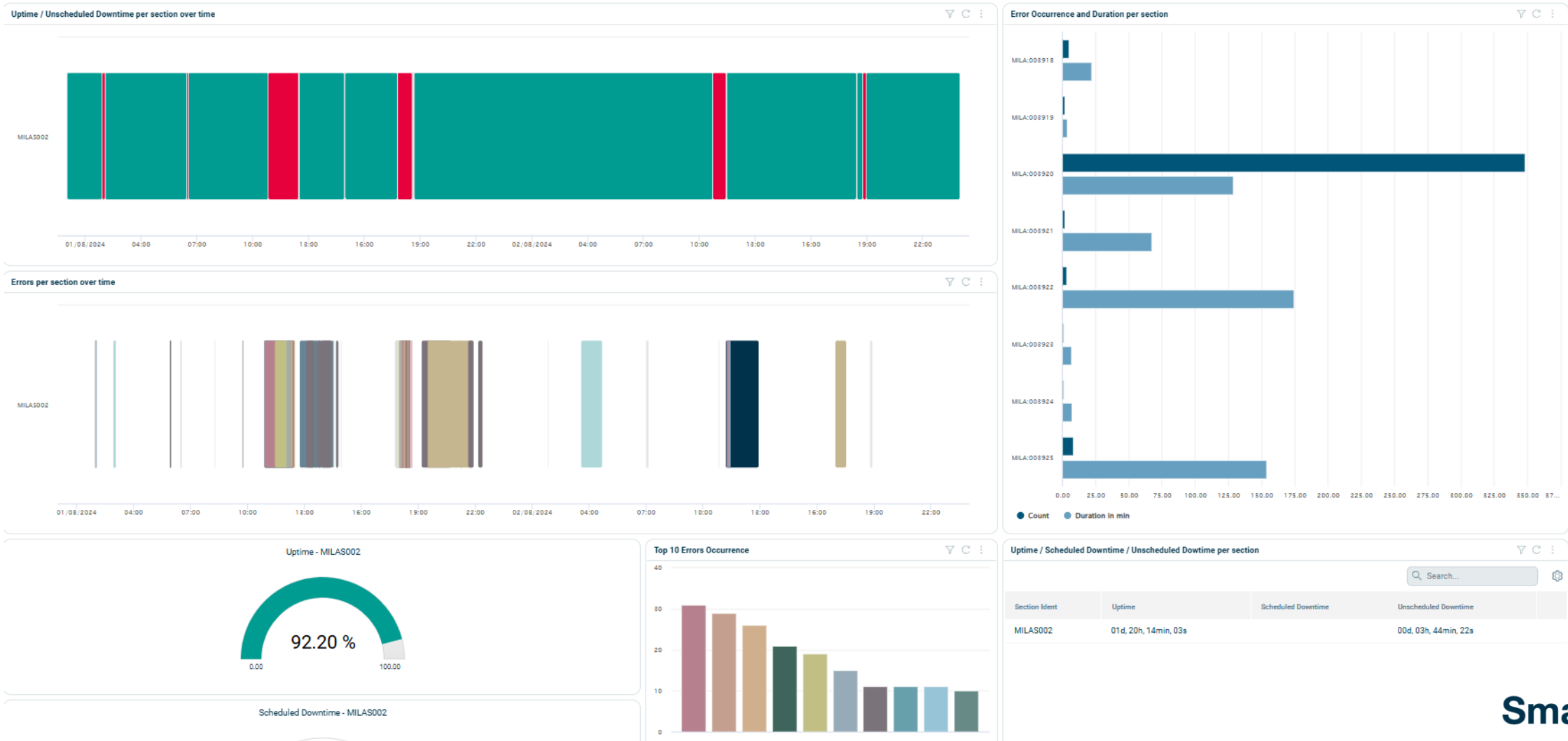


### Process-specific applications



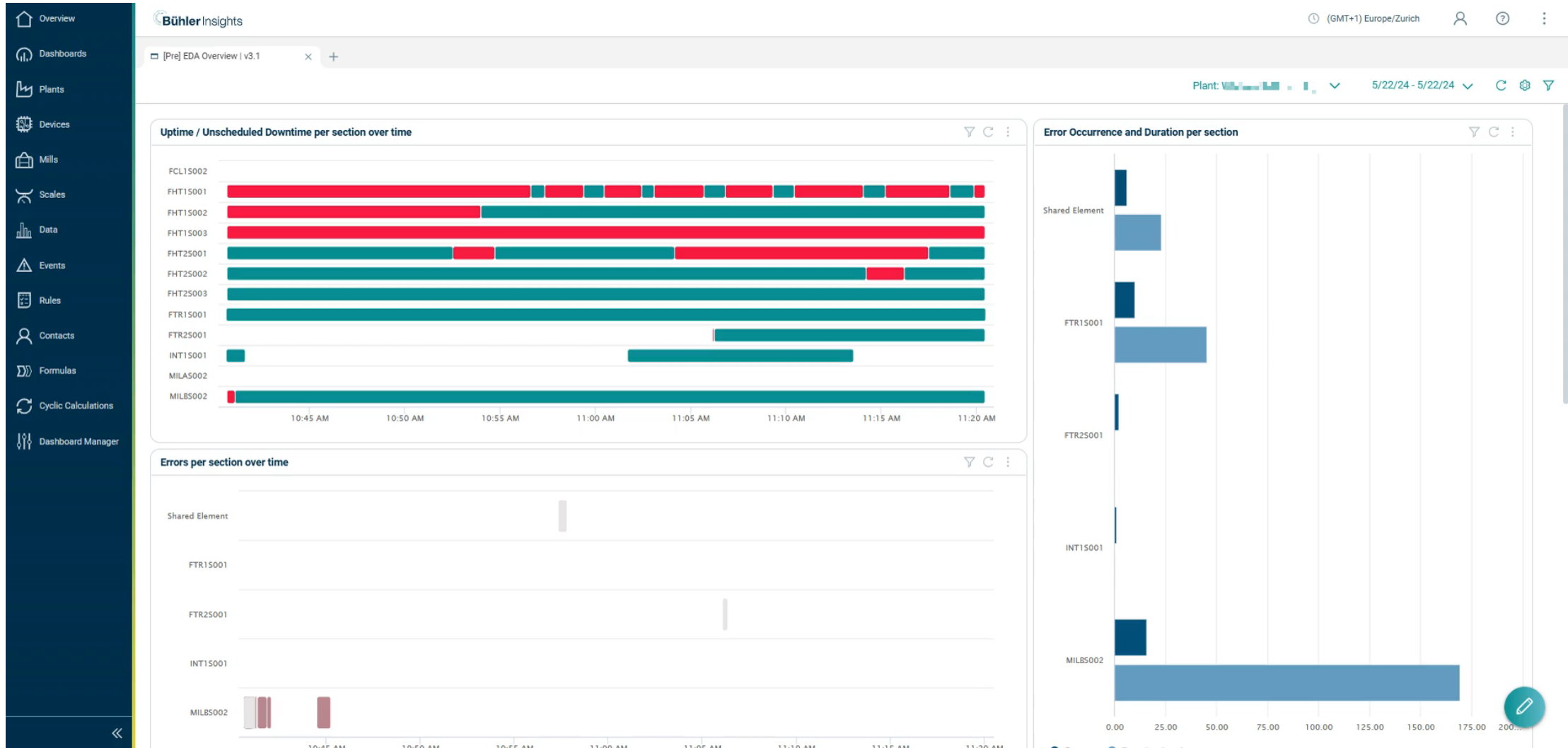
# Use cases - Troubleshooting Assistance

Faster problem-solving and easier exchanges within Operations team



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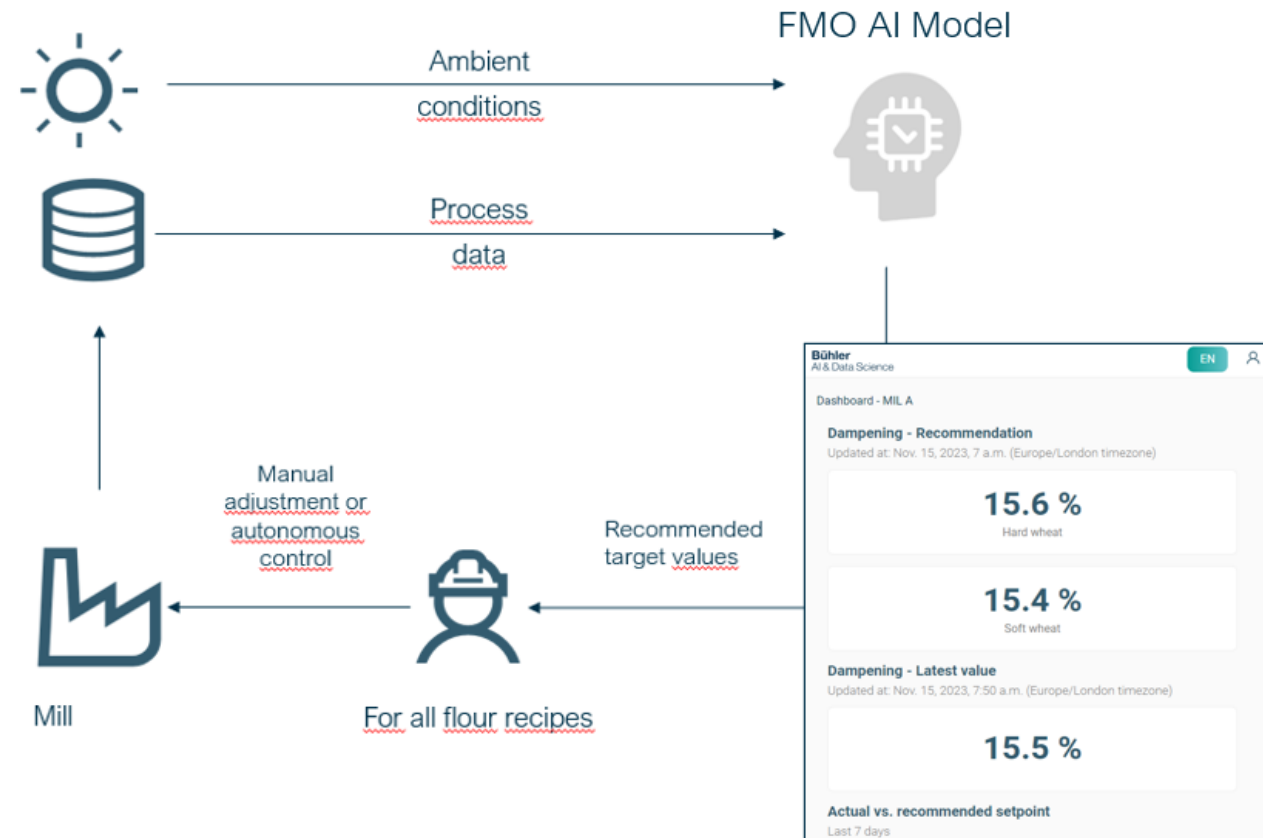


# Use cases – Flour Moisture Optimizer

Moisture consistency for optimal water usage

## How does FMO work?

- FMO is utilizing data and AI to provide dampening recommendations to the operator
- The FMO AI model learns the specific relationships between tempering, weather conditions, and the mill's current state using the past 12 months of data.
- The AI model is updated automatically to accommodate any changes in those relationships.
- Recommendations for optimal water addition are generated hourly.
- The recommendations consider the target values of the flour, and both current and forecasted local weather conditions.

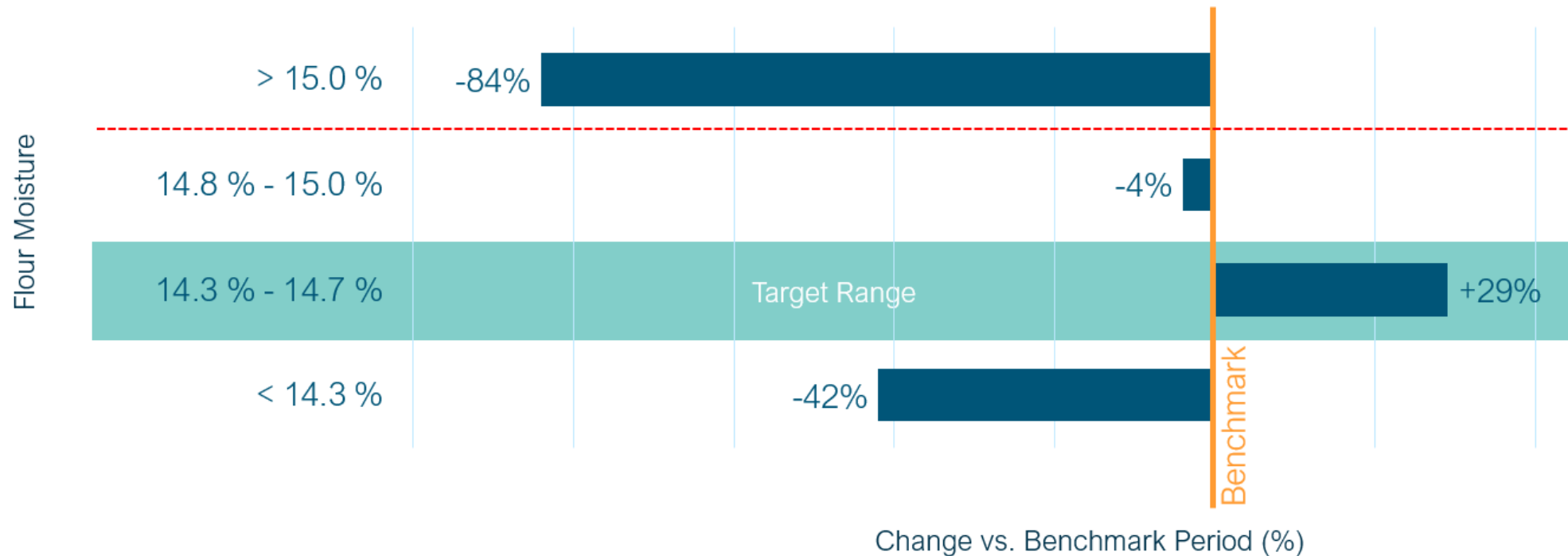


# Use cases – Flour Moisture Optimizer

## Results: Improved Flour Quality Consistency

High flour moisture occurrence reduced by 84%.

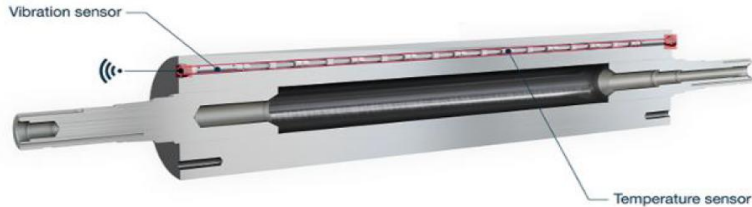
FMO Period: Nov 2023 – Mar 2025. Flour moisture average: 14.5 %  
Benchmark: Jan 2023 – Oct 2023. Flour moisture average: 14.5 %  
Flour moisture measured by online NIR. Sampling interval 5 mins.



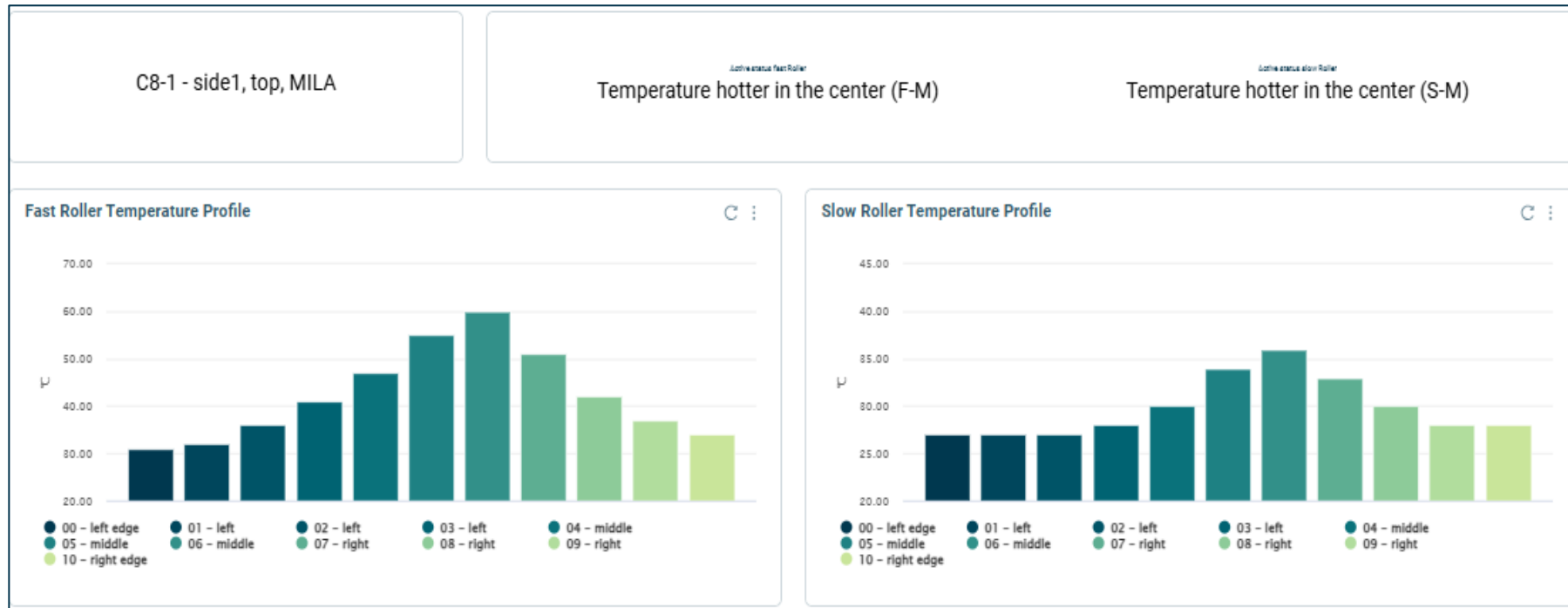
# Use cases

## Temperature & Vibration Management, and Grinding Gap Optimizer

Wireless roll / plug sensor (MYUB)

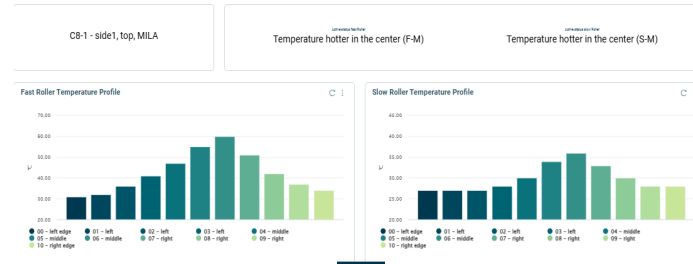


Wireless roll sensor over roll length



# Use cases

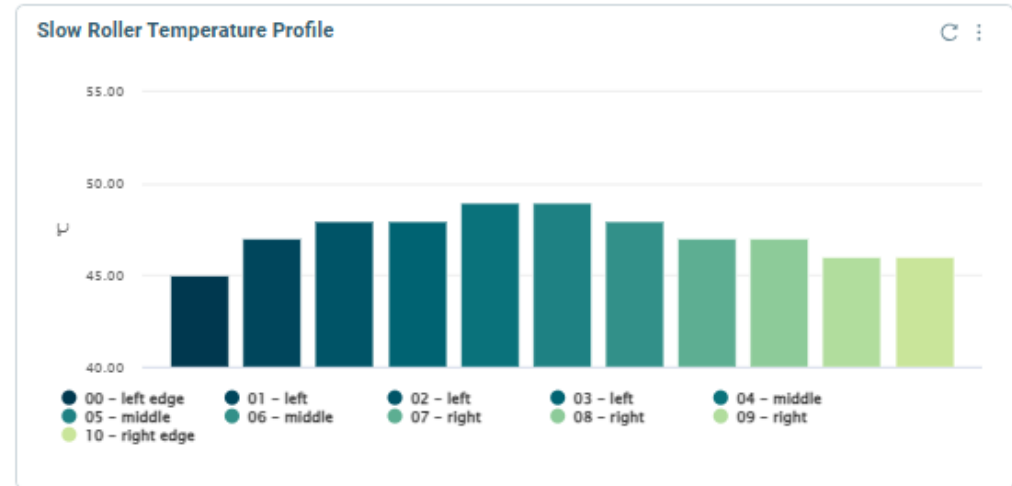
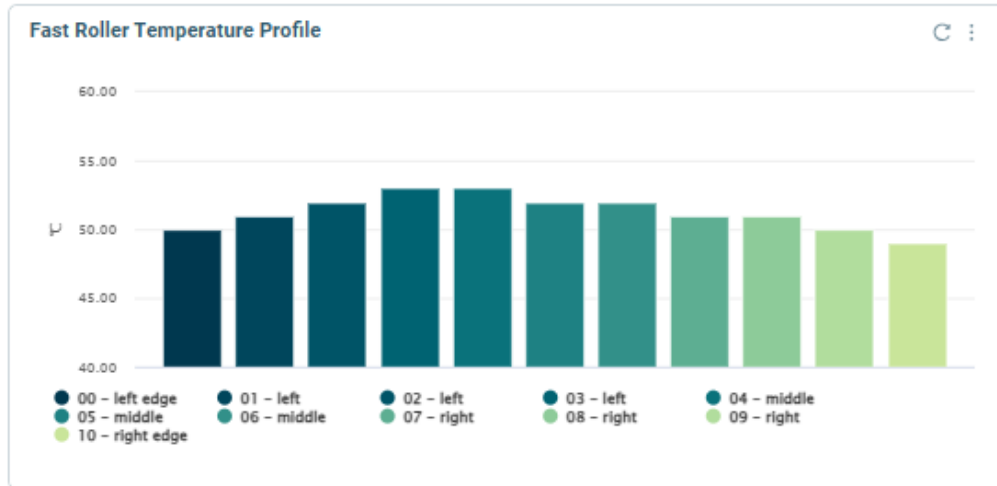
## Temperature & Vibration Management, and Grinding Gap Optimizer



C1A-8 - side2, top, MILA

No Imbalance Observed

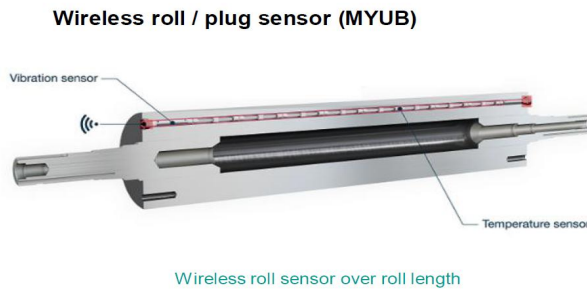
No Imbalance Observed



# Use cases

## Temperature & Vibration Management, and Grinding Gap Optimizer

### First measure of the impact of TVM



Roll passage	Starting Kwh	Finishing Kwh	Energy saving
C1A (1)	14.8	7.6	7.2
C2A (1)	6.1	7	-0.9
C1A (2)	15.2	8.7	6.5
C2A (2)	8.9	8.1	0.8
C1A (3)	11.8	8.2	3.6
C2A (3)	5.6	6.6	-1
C1A (4)	10.4	9.8	0.6
C2A (4)	8.3	8.4	-0.1
C1A (5)	11.2	7.7	3.5
C2A (5)	5.6	6.8	-1.2
C1A (6)	8.1	7.9	0.2
C2A (6)	7.6	7.2	0.4
C1A (7)	10.1	7.2	2.9
C2A (7)	5.4	6.1	-0.7
C1A (8)	9.6	9.3	0.3
C2A (8)	6.8	7.1	-0.3
C1A (9)	12.9	8.3	4.6
C2A (9)	4.6	5.6	-1
C1A (10)	9.9	9.7	0.2
C2A (10)	9.8	9.1	0.7
<b>Total Kilowatt hour saving</b>			<b>26.3</b>

# Use cases

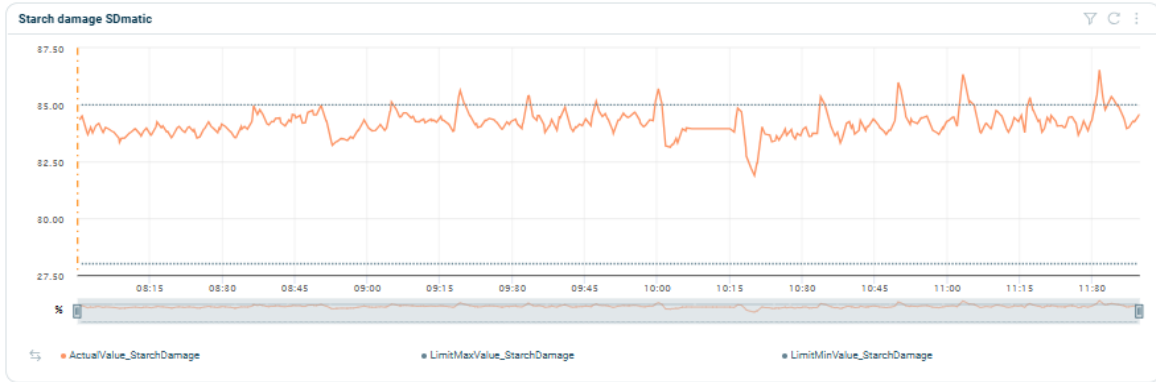
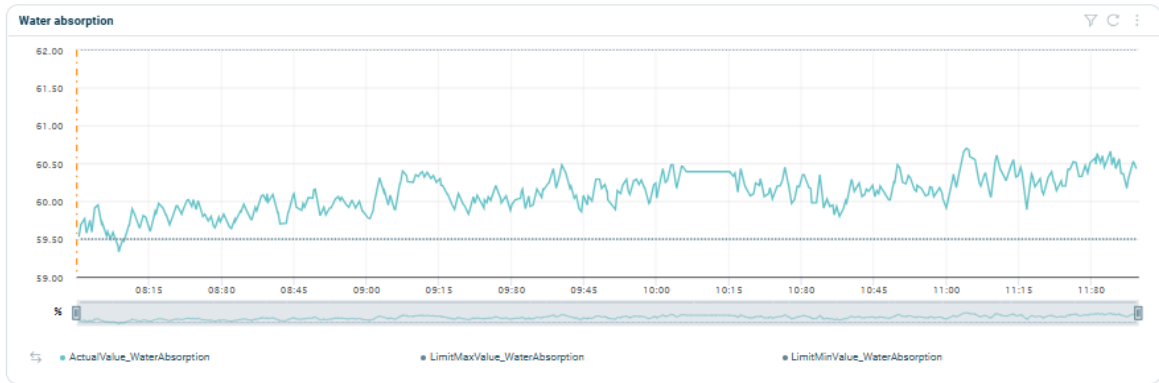
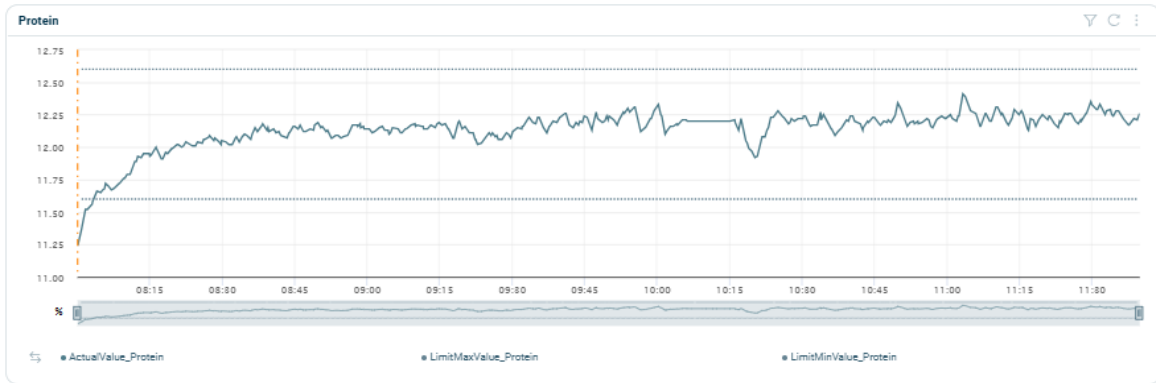
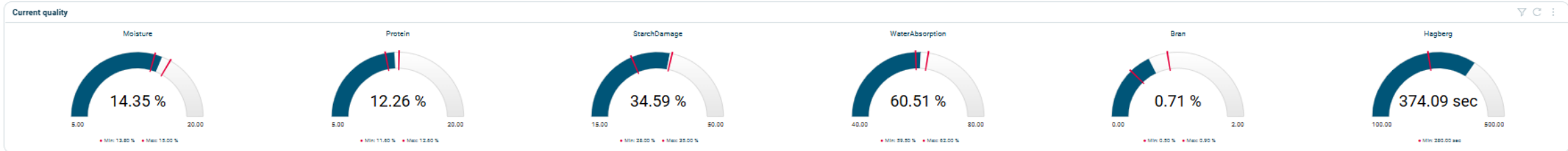
## Temperature & Vibration Management, and Grinding Gap Optimizer

Assistant for grinding optimization



# Use cases Quality Management

## Efficient Quality Consistency



# What Whitworth Bros. Ltd has already achieved

## **Whitworth Bros.Ltd.**

FLOUR MILLERS

Most technologically advanced mill in the world

Streamlined approach to milling

Reduced carbon footprint

Reduced energy consumption

Reduced water consumption

Milled with the best technology available

Apply this technology throughout our estate

Consistent quality of finished product

*“Empowering the milling industry with digital technology, redefining milling processes and advancing the education of future millers”*