



**AI REVOLUTIONIZING PAPER  
MILLS TO ACHIEVE  
OPTIMIZATION AND  
SUSTAINABILITY**



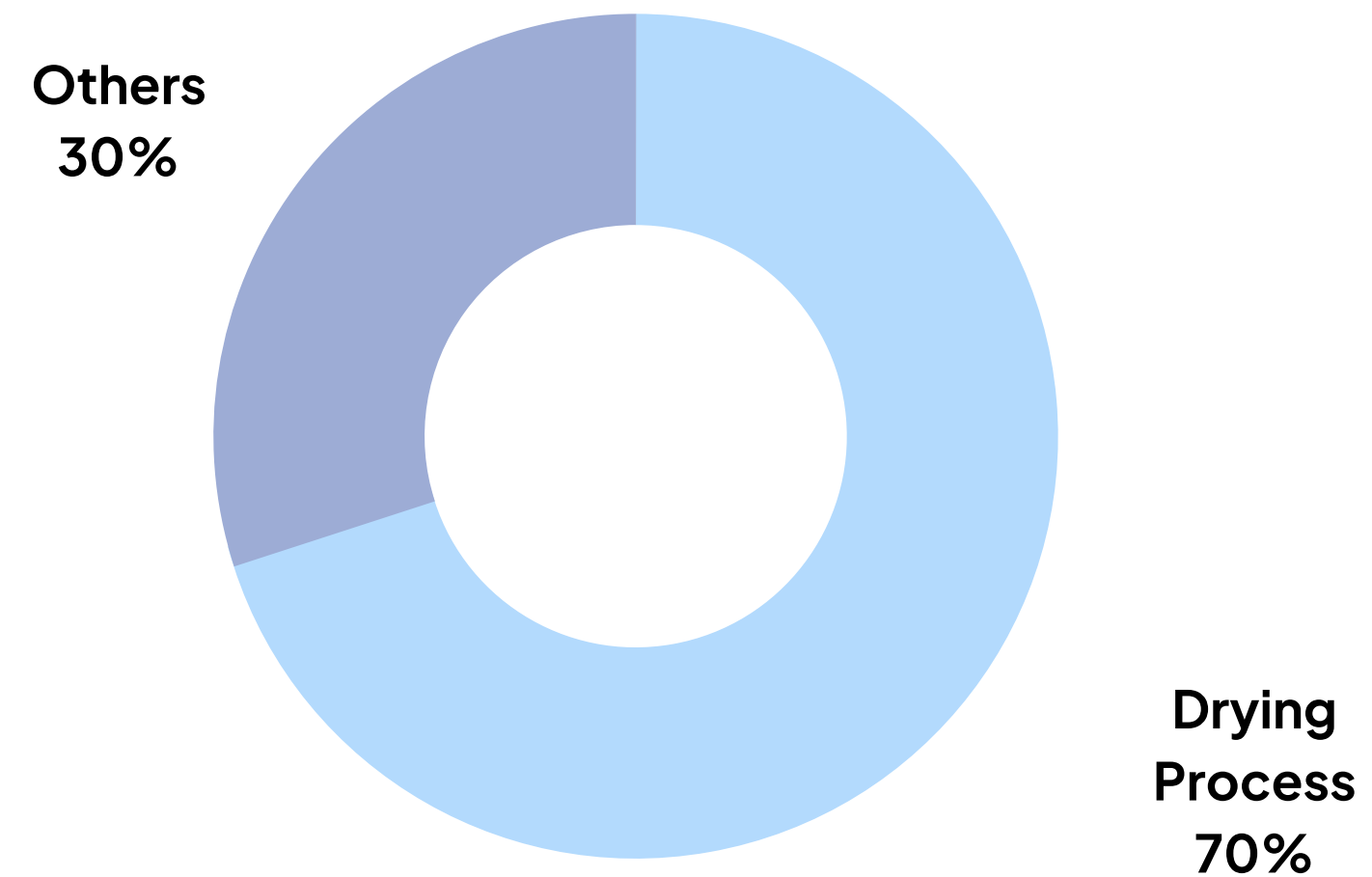
# SYNOPSIS

- Energy scenario
- Why AI in paper Industry
- Methodology
- Case Study
- Haber's Approach
- Multivariable Structure
- Key Results
- Conclusion

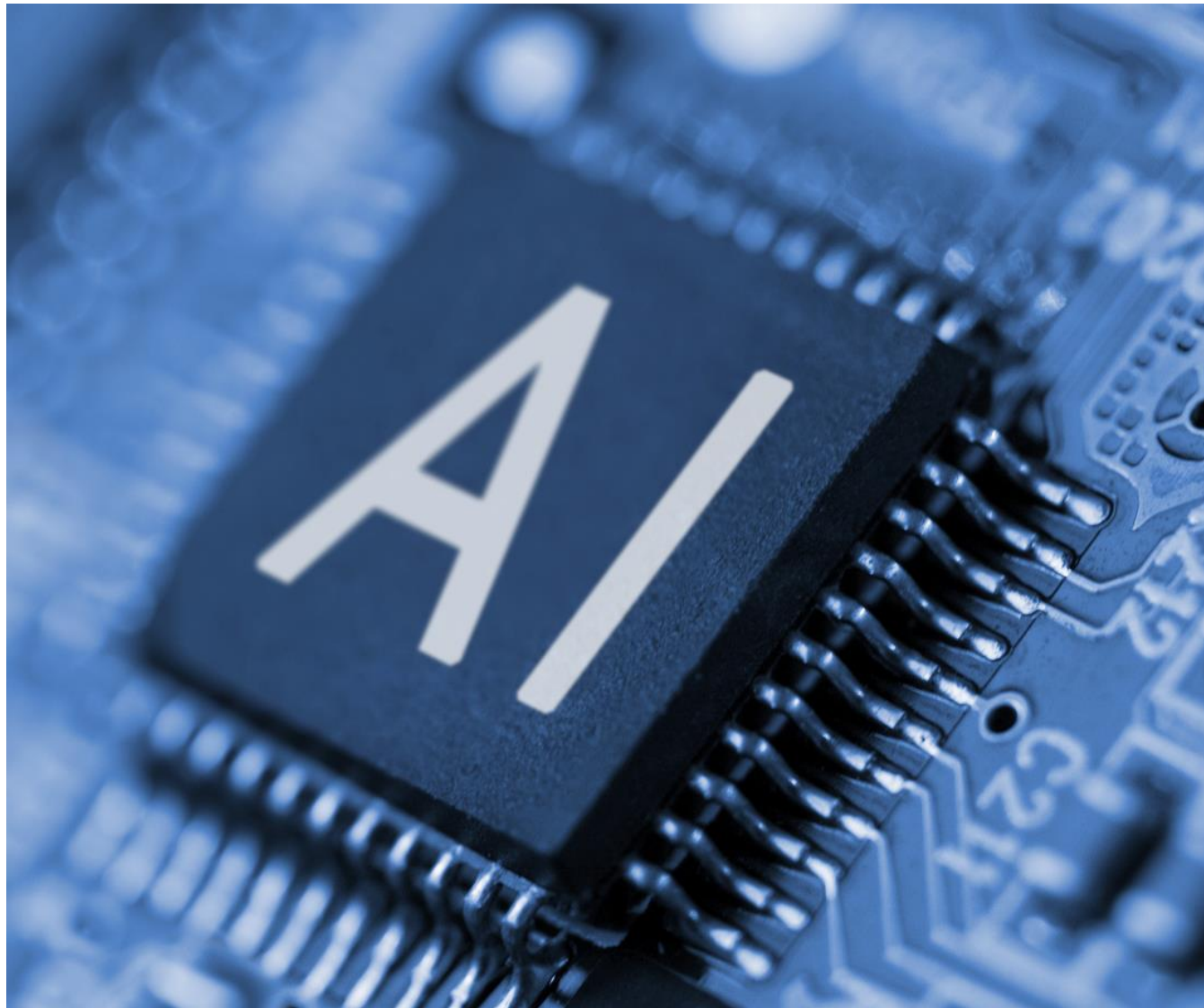
# ENERGY USED IN PAPERMAKING

Paper Making is extremely Energy intensive.

Drying process currently accounts for 70 % of the energy used for paper making



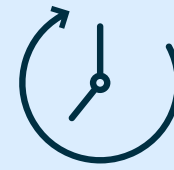
# WHY AI IN PAPER INDUSTRY



- Dependency on multiple variables
- Real-time data requirement for critical variables
- Manual Laboratory Testing with 1-2 hour delay
- Manual process and chemical dosage Adjustments

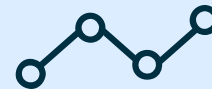


# HOW IT WORKS



## REAL-TIME SAMPLING

Continuously measure key parameters through sensors



## DATA-DRIVEN INSIGHTS

Analysing trends via Machine Learning techniques



## AUTOMATED INTERVENTION

Automated control on the basis of data analysis



## DATA VISUALISATION

Presenting data as intuitive charts for quick and easy analysis of KPIs



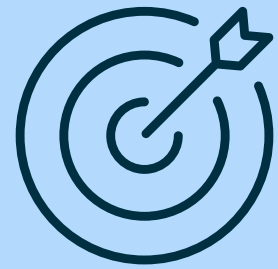
# CASE STUDY

The study was conducted in an agro-based mill, using bagasse, which produces specialty paper in the range of 30 to 60 GSM.

The client was facing an issue with the drainage rate, which was impacting the production rate and overall energy consumption.



# HABER'S APPROACH



## OBJECTIVE

- Increase production
- Reduce energy consumption
- Improve machine wet end stability

1

3 months data was fetched

2

Data Analysis

3

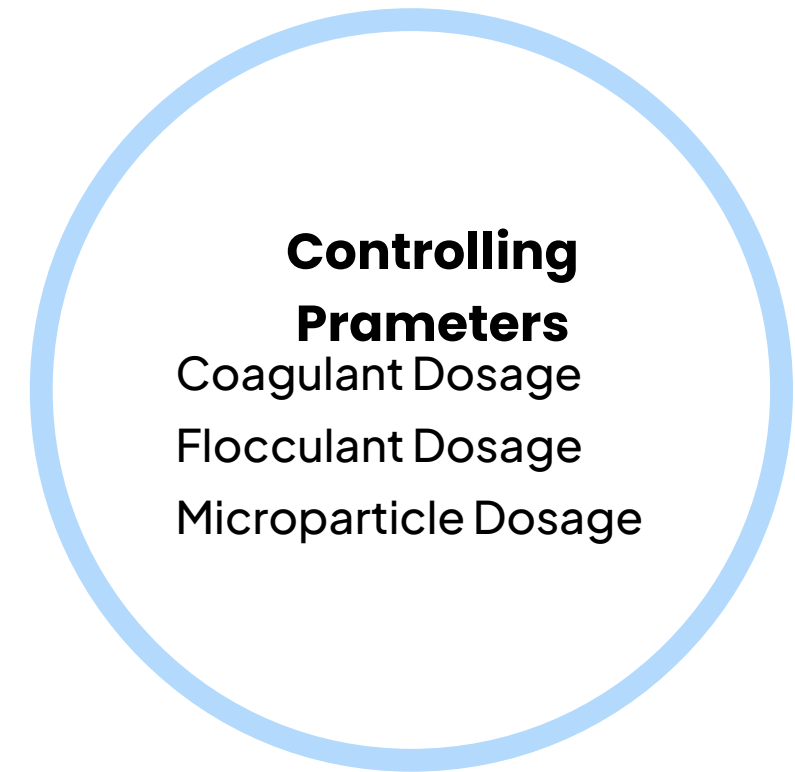
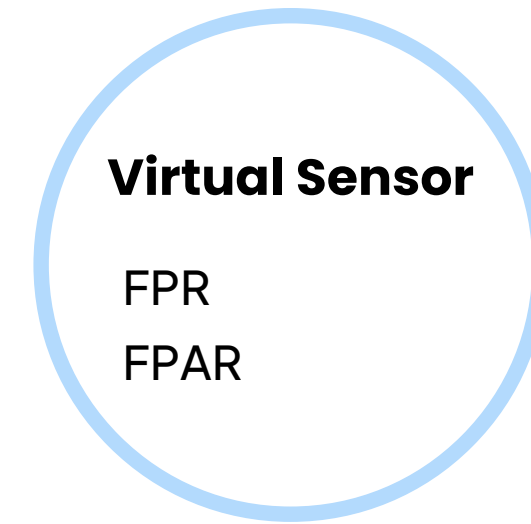
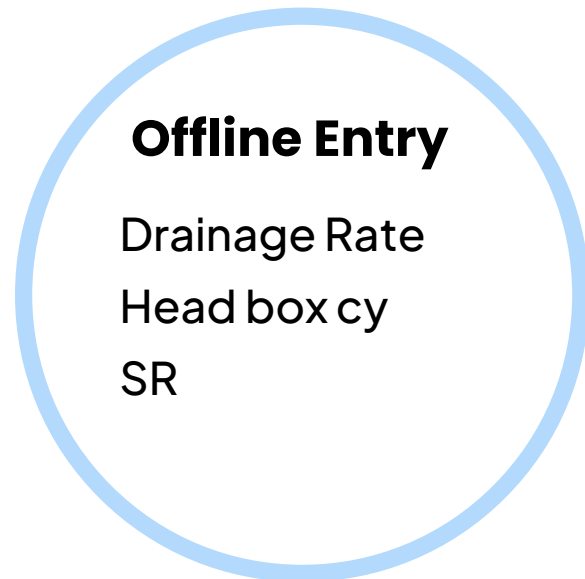
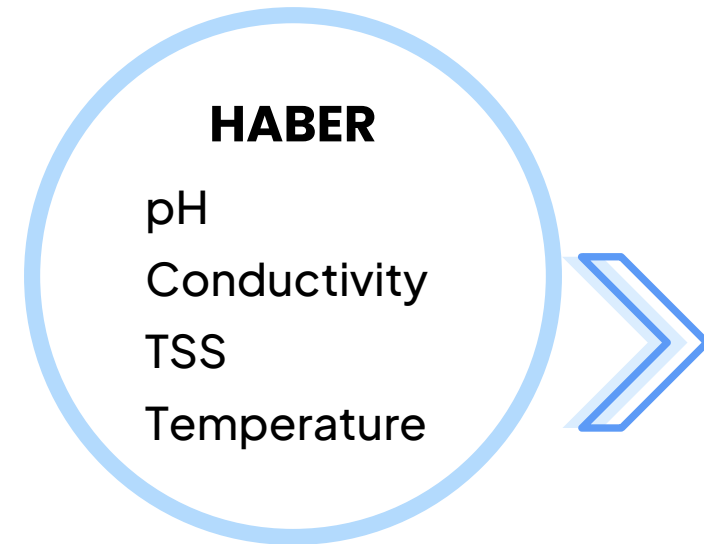
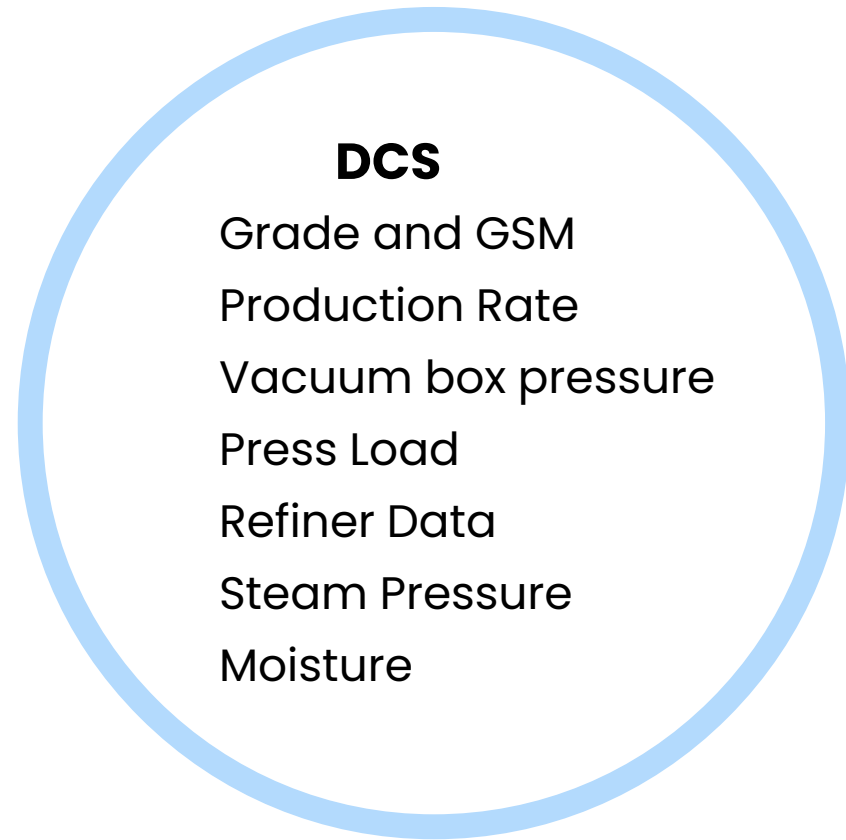
KPIs calculated in real time

4

Developed predictive model for chemical dosage

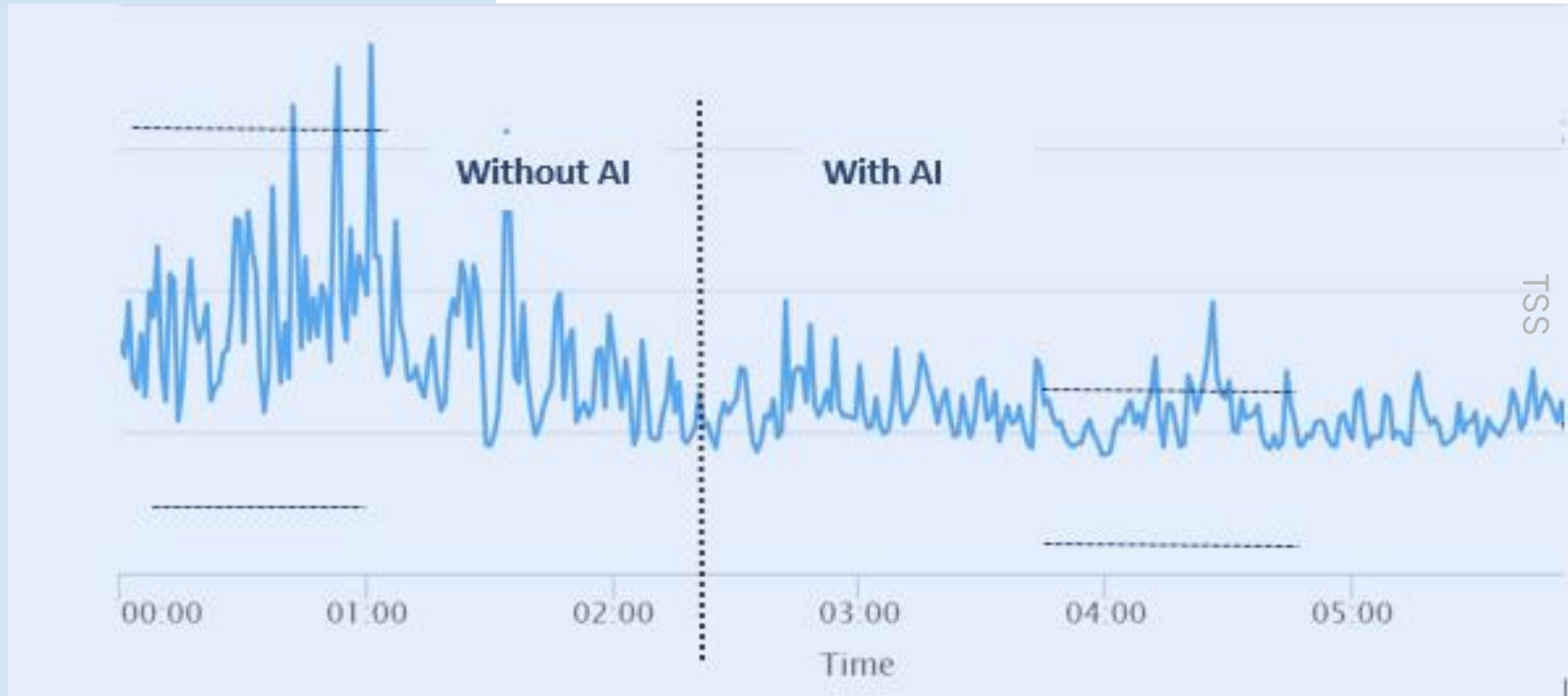


# MULTI VARIABLE STRUCTURE





# WHITE WATER TSS VARIATION



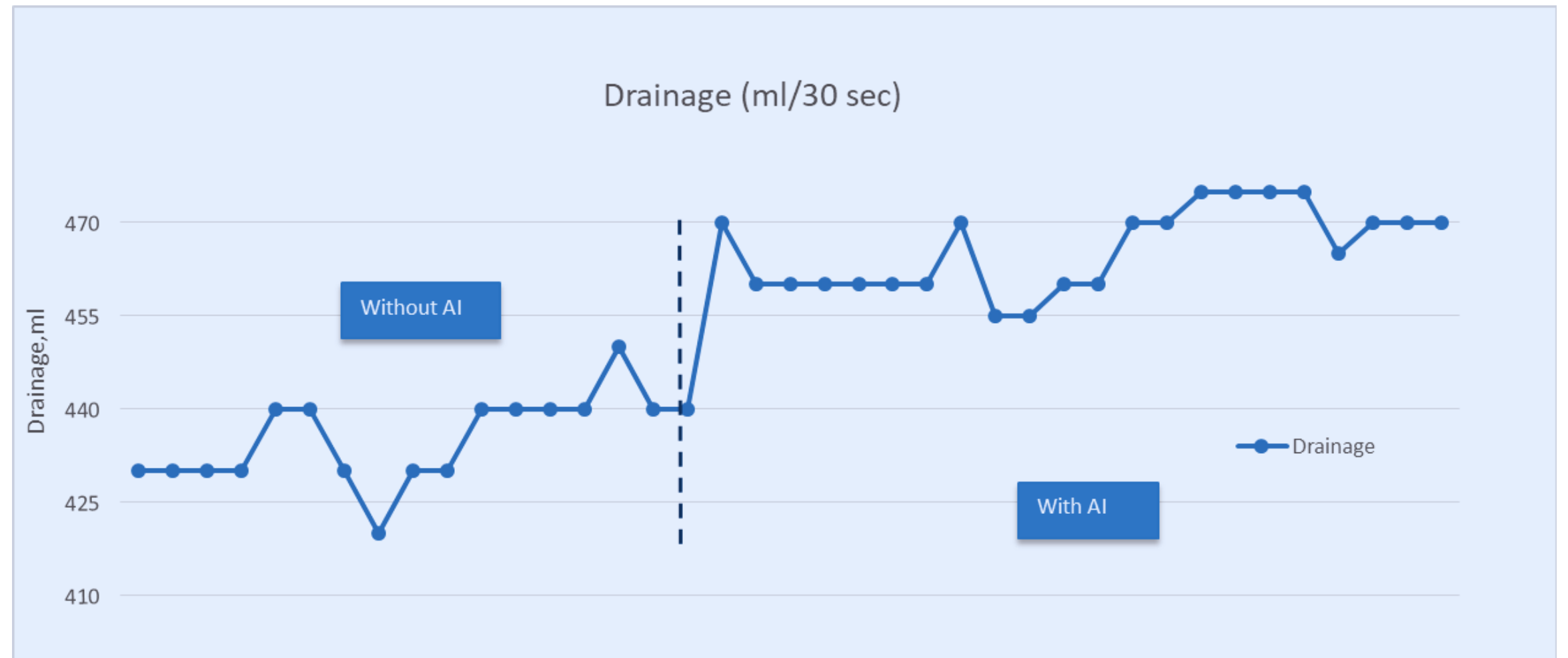
# RESULTS

1. FPR has moved from 63% to 70%
2. FPAR improved from 24% to 30%.



# RESULTS

- The free drainage of the system improved from 430 ml/ 30 seconds to 470 ml/ 30 seconds.
- It also lead to a reduction in steam consumption from 2.4 t/t to 2.01 t/t.





# CONCLUSION

- With the use of Artificial Intelligence , an optimized drainage rate is achieved leading to reduced energy consumption in vacuum pump and reduced usage of steam.
- An overall improvement in production rate through improved drainage.
- Multivariable based predictive model , helps to achieve target KPIs consistently by optimizing the chemical dosage and process parameters.

**THANK YOU!**

