AI IMPLEMENTATION IN FOOD PACKAGING

A SPECIAL CASE OF MOLDED FIBER PRODUCTS

GROWTH IN MFP

2027

$9.16 Bn

$4.6 Bn

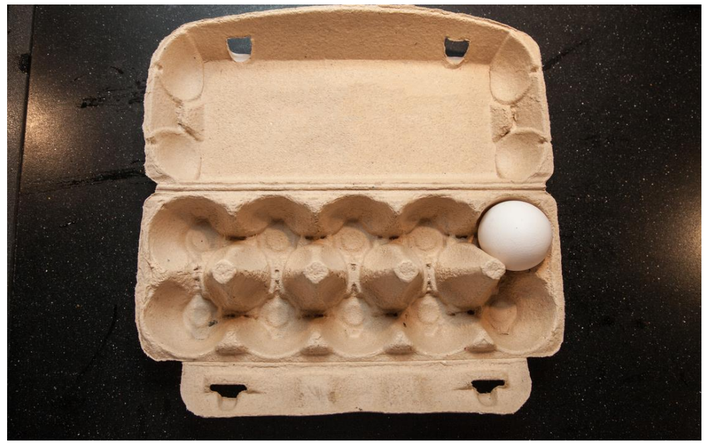
2022

14.78%

CAGR

Asia Pacific to reign as the largest market

USED ACROSS INDUSTRIES



CHALLENGES

- Production Cost
- Quality Consistency
- Property Limitations
- Scaling of Production
- Sourcing Inconsistencies

AI: THE GAME CHANGER

AI: THE GAME CHANGER

- Drainage Improvement
- Wet Strength Optimization
- Stiffness Prediction

SUSTAINABLE PRODUCTION WITH AI

01

Reduce Cost

Improved Quality

SUSTAINABLE PRODUCTION WITH AI

01

Reduce Cost

Improved Quality

02

Optimize Resource Utilization

SUSTAINABLE PRODUCTION WITH AI

01

Reduce Cost

Improved Quality

02

Optimize Resource Utilization

03

Position Yourself in the Market

SUSTAINABLE PRODUCTION WITH AI

01

Reduce Cost

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03

Position Yourself in the Market

04

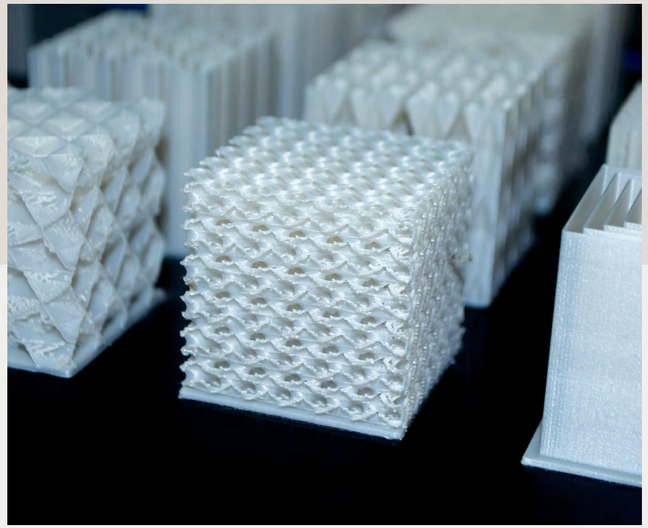
Implement Sustainable Practices

MANUAL TESTING

- Issues in Scalability
- Incomplete Coverage
- Limited Scope of Testing
- Incoherent Recipe Alteration
- User Subjectivity

CASE STUDY

The study was conducted at one of the leading wood pulp and agro-waste-based MFP manufacturers, producing molded products in the 400 GSM range, over a period of 30 days.



Targets:

- Reduce stiffness & quality variation
- Increase production rate
- Optimize chemical consumption

THE HABER APPROACH

01

Mined 12 Months of Time-Series Data

02

Analyzed multi-dimensionality of relevant parameters

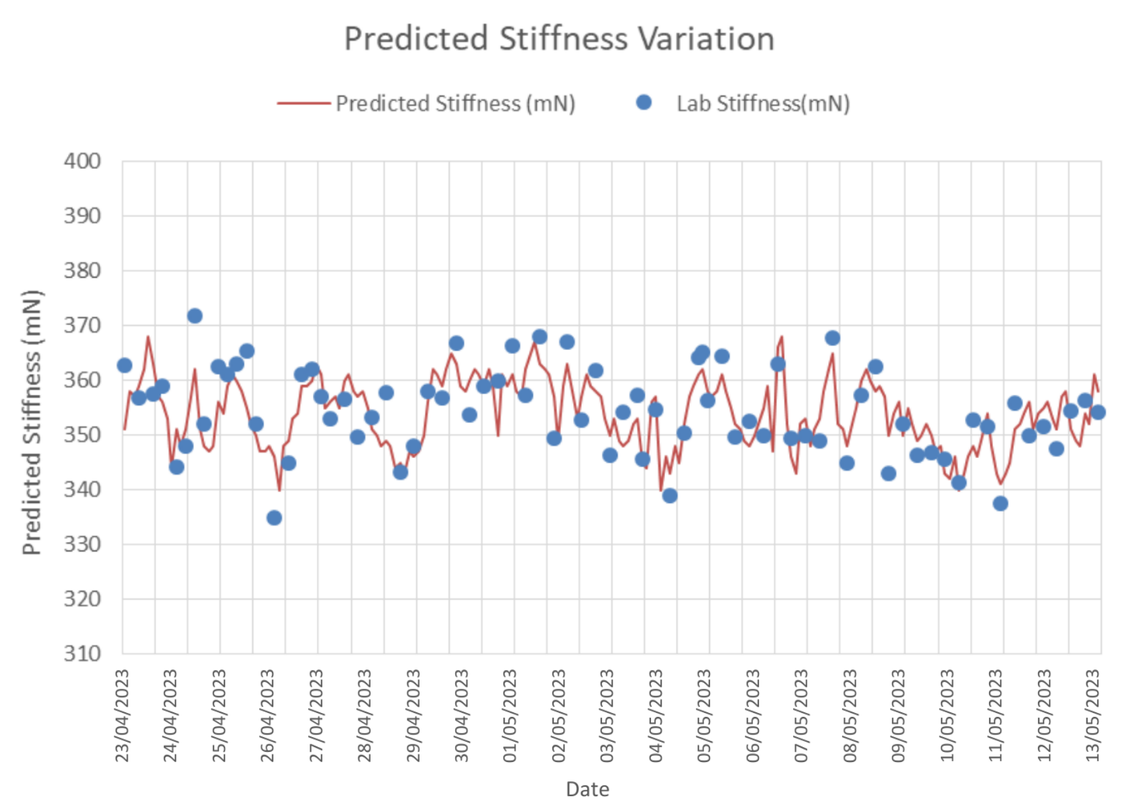
03

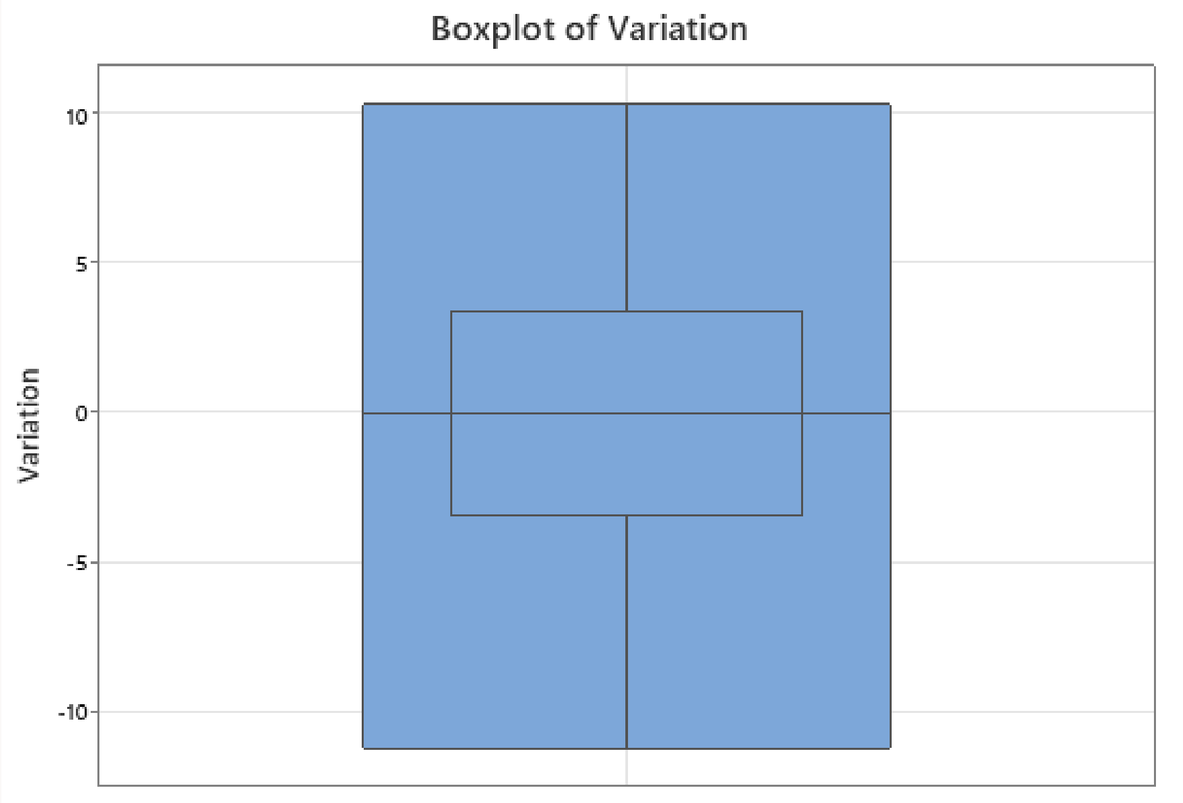
Designed Stiffness Prediction Algorithm

04

Engineered Strength Additive Prediction Model

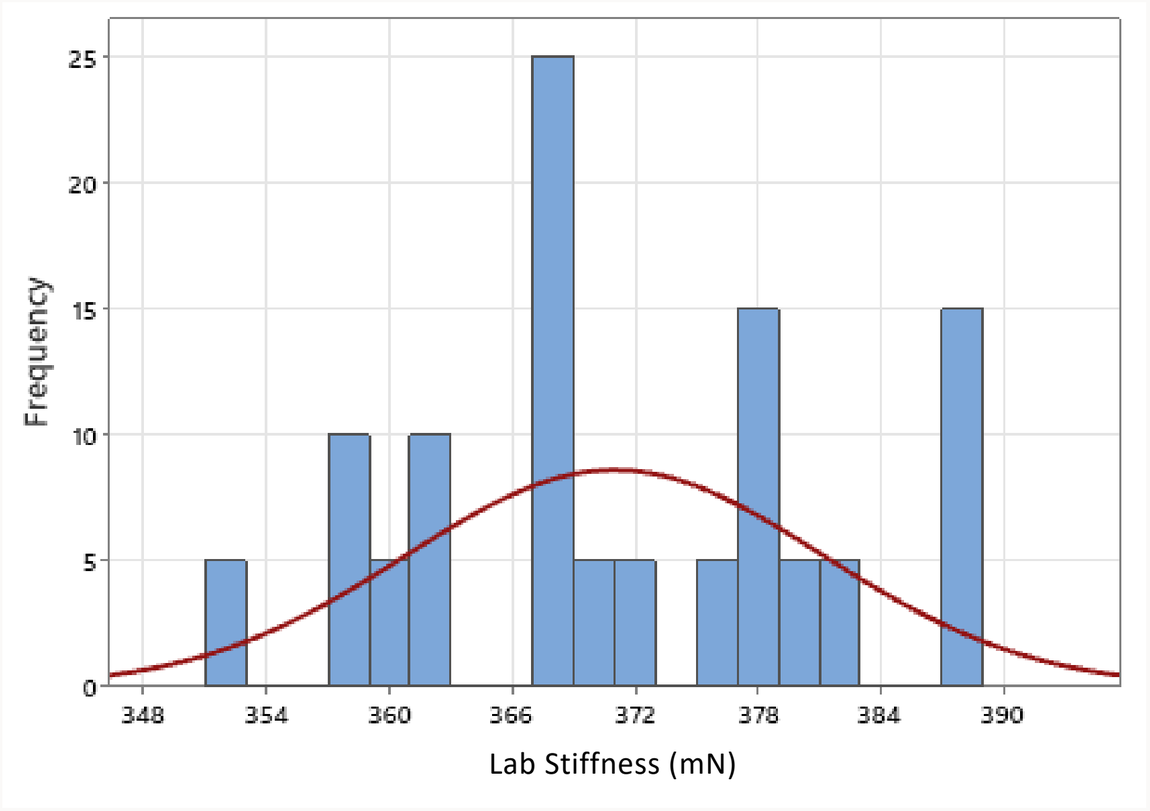
PREDICTION MODEL ACCURACY



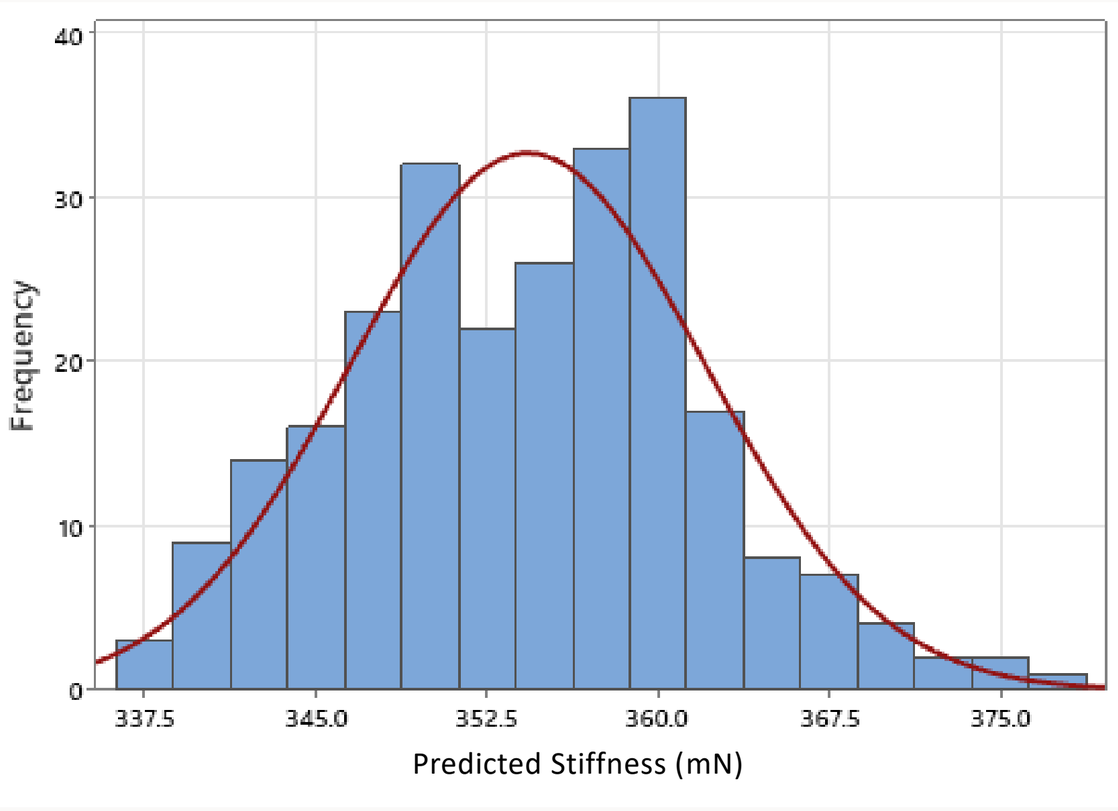


Target Stiffness: 350 mN

LAB STIFFNESS VS PREDICTED STIFFNESS

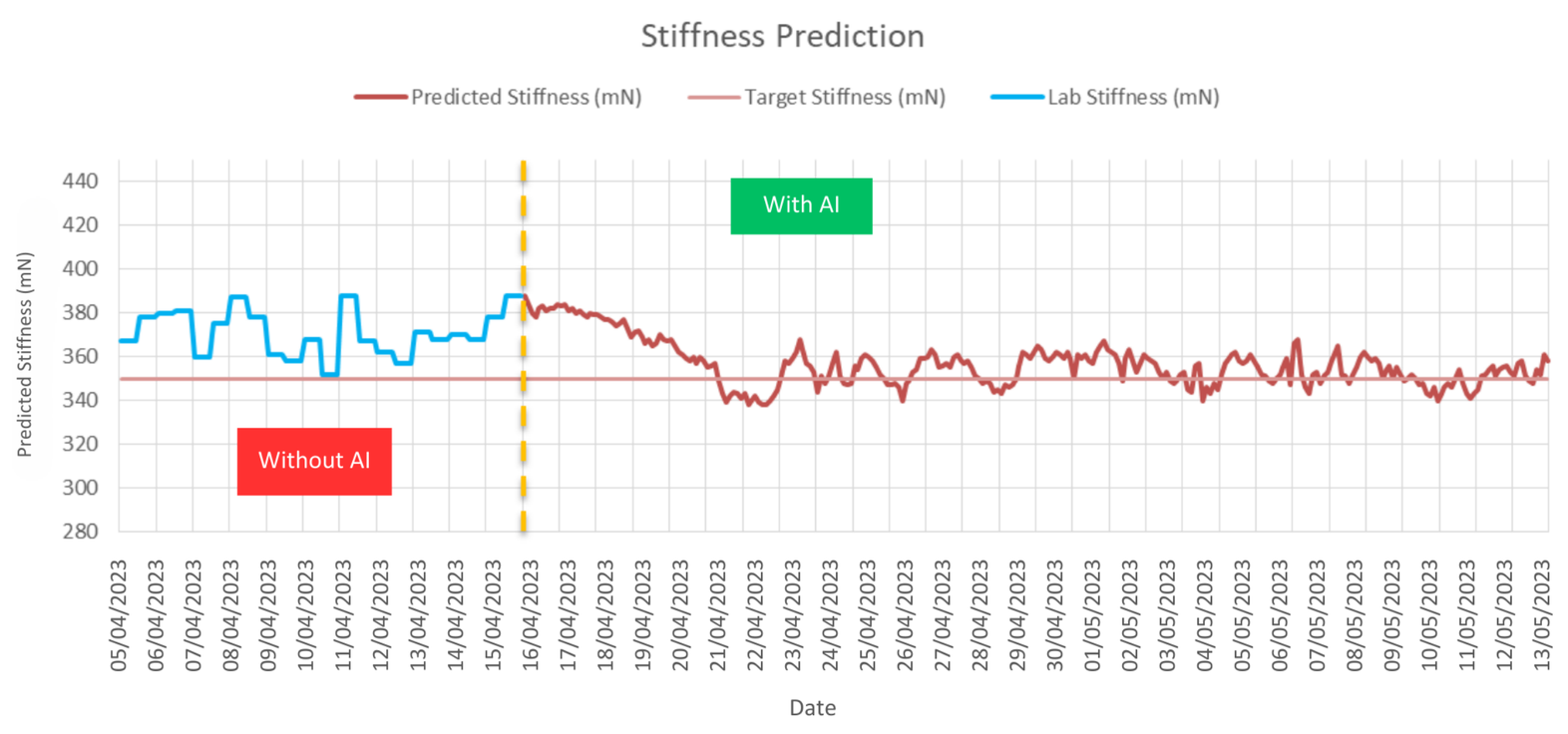


Mean 371 **Std. Dev.** 10.20



Mean 354.3 **Std. Dev.** 7.782

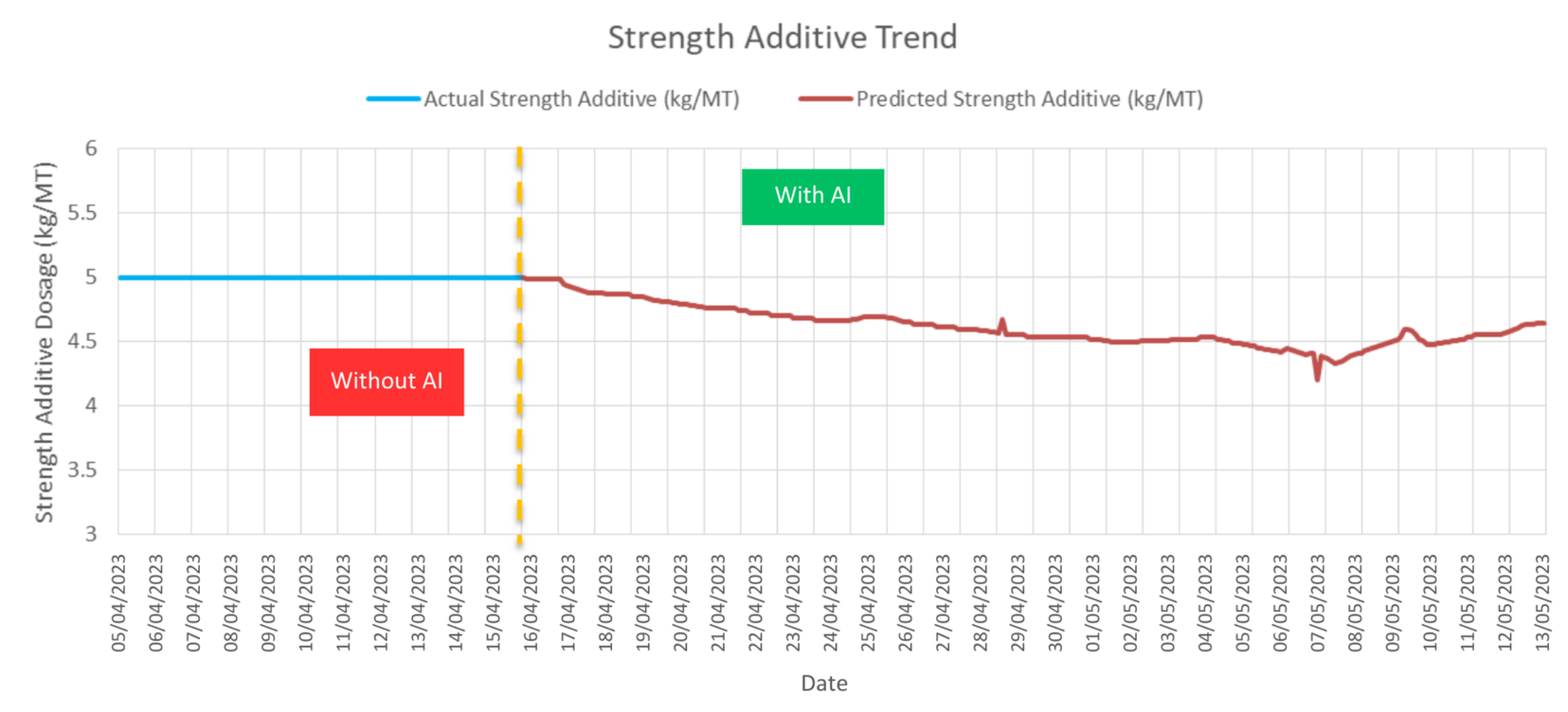
RESULTS



Target Stiffness: 350 mN

- Refreshed Stiffness Predictions every **30 seconds**
- Consistency observed in maintaining target stiffness and quality
- Increase in TPD production

RESULTS



- **7.8%** reduction in chemical consumption

CONCLUSION

- AI-based process control helped drive production rate and product quality
- Cleaner data due to real-time acquisition
- Optimized molded fiber production pricing
- Reduced chemical requirements
- Maintain quality control
- Provide an increased control over the process

THANK YOU!