

PERISHABLE INVENTORY OPTIMIZATION: FROM WASTE TO PROFIT

TURNING PERISHABLE INVENTORY INTO A STRATEGIC GROWTH ENGINE.

THE CHALLENGE

Inefficiency in perishable inventory management



Problem: Balancing excess (waste) and shortage (lost sales) in perishable goods



Fact: Retailers lose 2.5%–4% of revenue annually due to unsold perishable

BUSINESS INSIGHTS

Key levers for profit improvement

Cut waste

Lower expiry losses and reduce disposal costs.

Capture demand

Ensure availability and prevent lost sales.

| Metric | Deterministic model | Stochastic model P50 | Stochastic model P90 |
|--------|---------------------|----------------------|----------------------|
| MAE | 7.78 | 7.31 | 8.03 |
| RMSE | 16.12 | 15.56 | 16.07 |

The stochastic model (p50) consistently achieves the lowest error and highest forecast accuracy, enabling better inventory decisions

FINANCIAL IMPACT



↑ 0,85% + ↑ 0,25% = 1,1% ↑

Waste reduction **Recovered sales** **Total impact**

A +1.1 % increase in operating profit transforms inventory from a cost center into a strategic growth engine

Optimize Capital

Free up resources for growth and innovation.

Boost Loyalty

Reliable availability builds stronger customer retention

90-DAY ROAD MAP

- 1 Integrate Data** – Clean and unify demand data sources.
- 2 Deploy the Model** – Implement stochastic optimization engine.
- 3 Validate Results** – Measure cost savings and sales uplift.
- 4 Scale & Automate** – Roll out across categories and automate decision-making

STRATEGIC TAKEAWAYS

-11.9%
WAPE

+225K
Annual savings

+1.1 %
Operating profit

1 FROM COST TO PROFIT ENGINE
Inventory optimization transforms a traditional cost center into a strategic profit generator — reducing waste, recovering lost sales, and driving sustained growth.

2 DATA-DRIVEN COMPETITIVE EDGE
Leveraging predictive models enables smarter, faster decisions that boost efficiency, improve margins, and position the company ahead of competitors.

3 SUSTAINABLE, SCALABLE GROWTH
The +1.1% profit uplift is just the beginning — this solution creates a foundation for continuous improvement, long-term profitability, and market leadership.