Inventory Optimization for Retail Pharmacies

Executive Summary & Recommendations

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TOOL: GOOGLE SHEETS

Objectives & Scope

Objectives

- Understand inventory imbalances (stock-out risk and overstocking)
- Assess alignment between demand forecasting and inventory decisions
- Identify supply-side constraints affecting availability

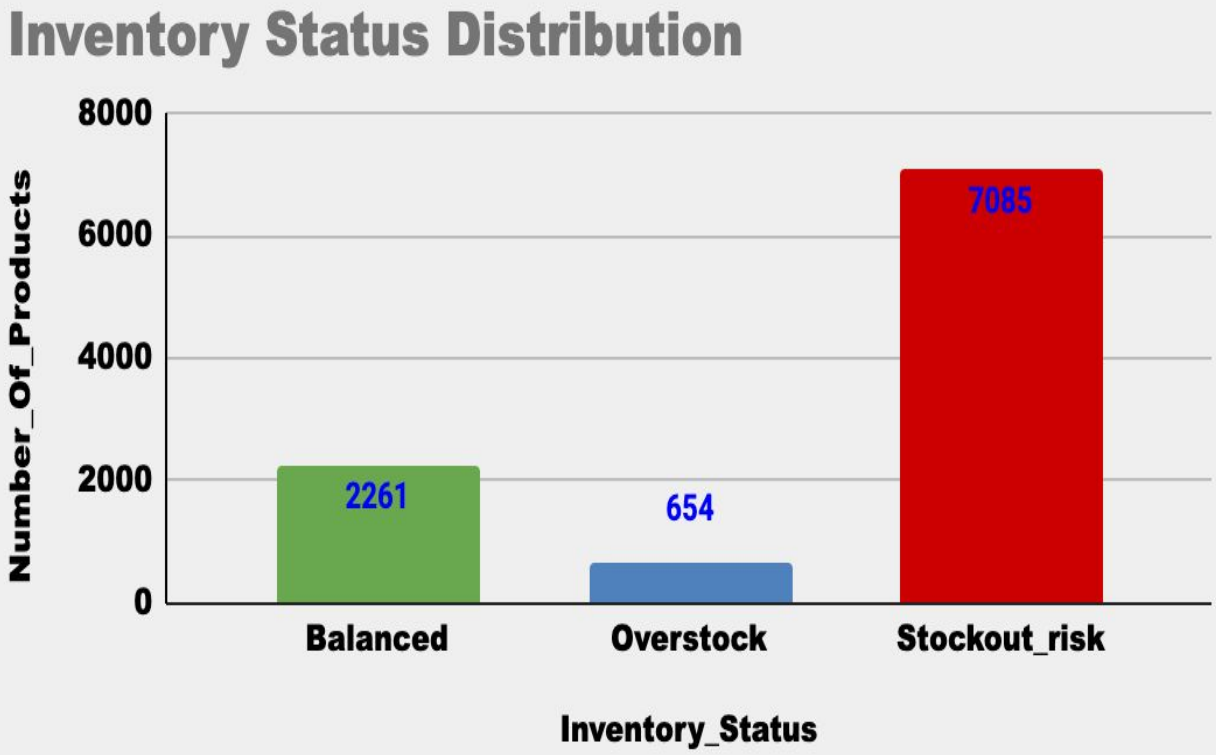
Scope

- SKU-level analysis across product categories
- Metrics: inventory pressure, lead time risk, reorder parameters, markdown indicators
- Tools: Google Sheets

Key Executive Takeaways

- **70.85% of products are at stock-out risk**, indicating widespread inventory imbalance.
- **89.04% of low-coverage products face lead times longer than their days-on-hand**, limiting replenishment recovery.
- Inventory pressure is **consistently below 0.5 across all categories**, showing systemic under-coverage rather than isolated issues.
- Inventory imbalance is driven by **replenishment and forecasting misalignment**, not zero-stock events.

Inventory Balance Overview (Outcome)

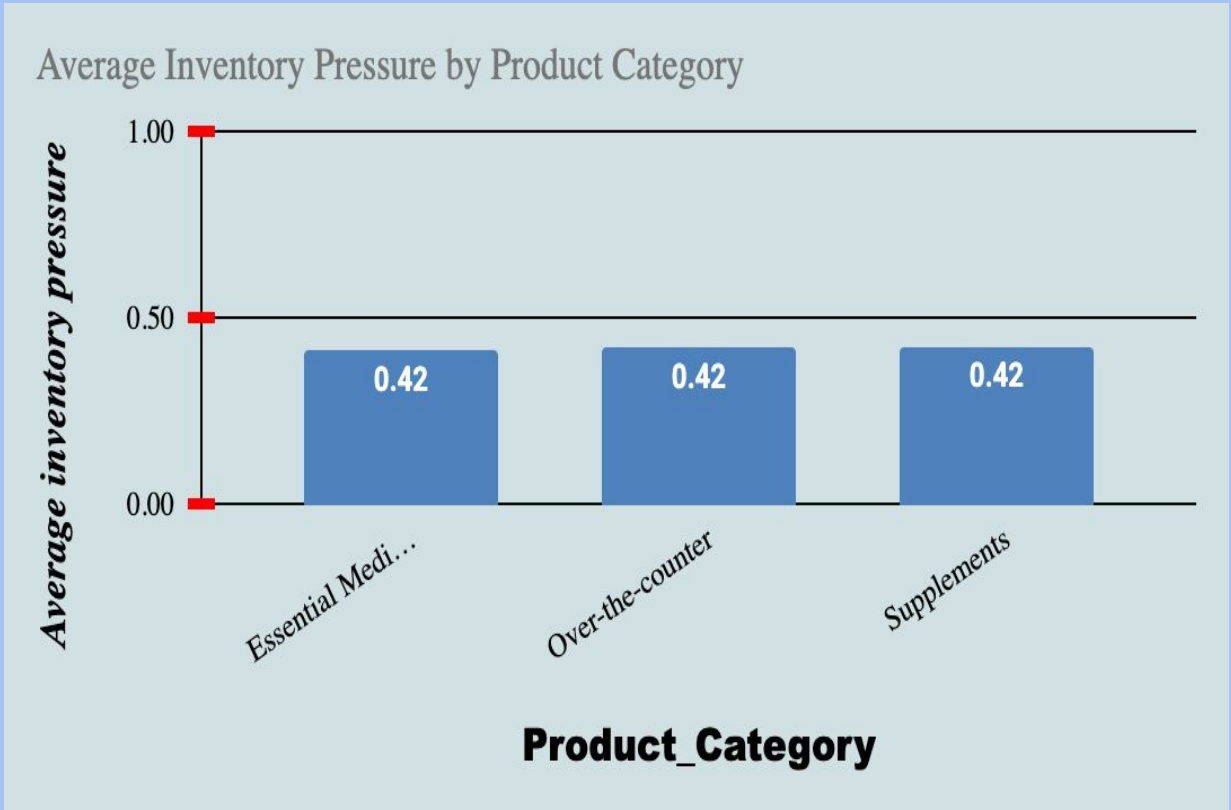


Key insight:

- Majority of SKUs fall into **stock-out risk**
- Overstock exists but is not the dominant issue

This slide establishes the **problem**.

Inventory Coverage Severity

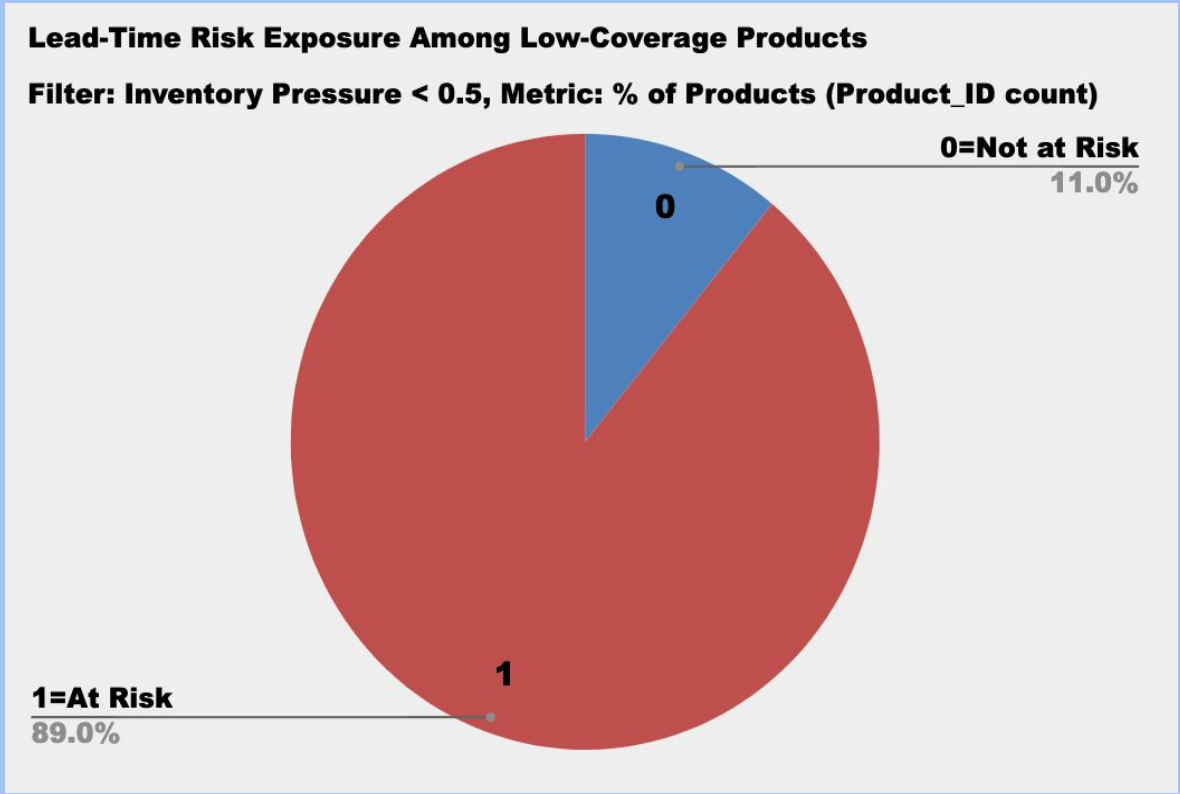


Key insight:

- All categories operate **below safe coverage thresholds < 0.5**
- Stock-out risk is **systemic**, not category-specific

This answers: *How bad is it?*

Lead-Time Risk Exposure (Root Cause)

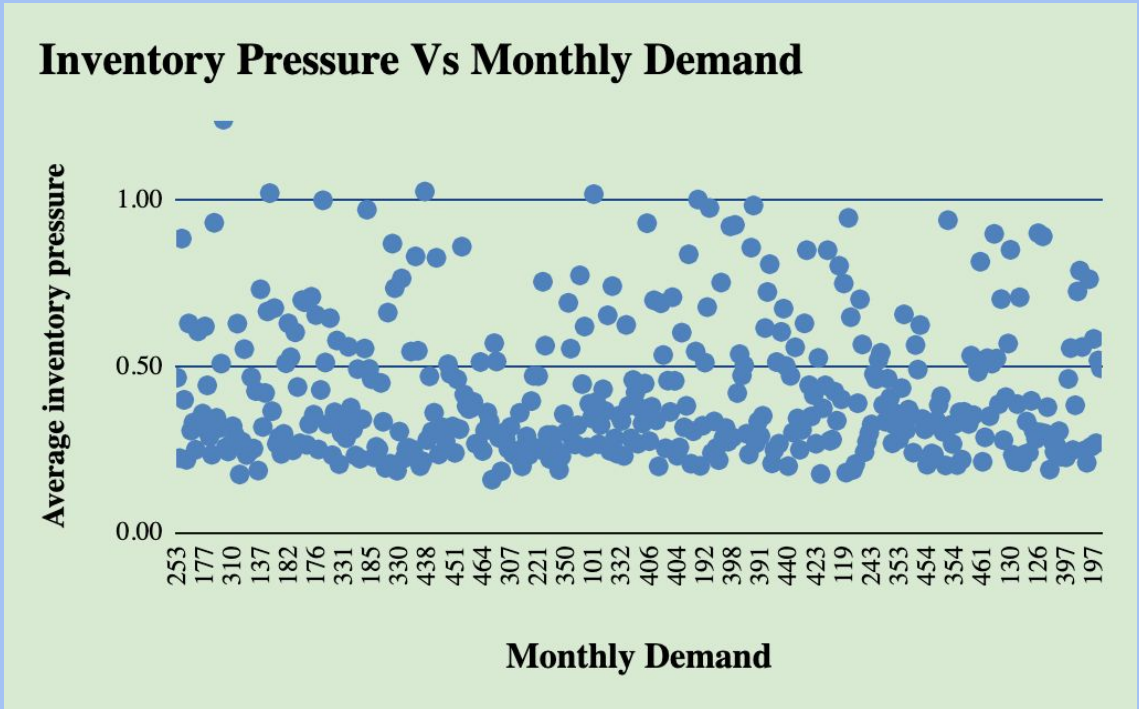


Headline insight:

- **89.04%** of low-coverage products cannot be replenished before stock depletion

This answers: *Why is the risk so high?*

Demand & Replenishment Misalignment



Red flags:

- **High Monthly Demand + Low Inventory Pressure**
- **Cluster of points below 0.5**

What this diagnoses:

- **Forecast–inventory alignment**
- **Understocking of high-demand SKUs**

Business Implications

- **High service-level risk for essential medicines**
- **Increased likelihood of emergency replenishment**
- **Lost sales risk despite inventory on hand**
- **Reduced resilience to demand spikes or supplier delays**

Key Recommendations (Summary)

- **Inventory Policy**
- **Forecasting**
- **Supply & Promotions (In Later project)**

Recommendations: Inventory, Replenishment & Forecasting

- Increase reorder points for long-lead-time SKU
- Introduce lead-time-based safety stock
- Differentiate reorder quantities by demand velocity
- Classify SKUs by risk tier (High / Medium / Low)
- Use rolling monthly demand instead of static forecasts

Conclusion

- Pilot revised reorder logic on high-risk SKUs
- Monitor inventory pressure weekly
- Integrate lead-time risk into reorder decisions