

Inventory Risk & Profitability Analysis for a UK Retailer Using ABC Classification

Objective

This project will analyse over **500,000 retail transactions** from a UK-based retailer to identify hidden business risks in inventory management and customer dependency. The goal is to help the business optimise stock decisions, reduce losses, and improve profitability using data-driven insights.

Core Problems Being Addressed

1. Dead Stock Identification

- Products that have not been sold in the last 90 days are classified as dead stock.
- These items occupy storage space, block capital, and reduce inventory efficiency.
- The business currently lacks visibility into such slow-moving items.

Insight Goal:

- Detect and quantify dead stock.
 - Measure its financial impact on total inventory value.
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2. Quality Control Risk via High Return Rates

- Some best-selling products exhibit return rates exceeding 10%.
- High returns indicate potential issues such as poor quality, misleading descriptions, or logistics damage.

Insight Goal:

- Identify top-selling products with abnormal return percentages.
 - Highlight products that look profitable but are operationally risky.
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3. Customer Concentration Risk

- Certain high-performing products are being purchased by only 1–2 unique customers.
- If these customers stop ordering, the product risks becoming dead stock.

Insight Goal:

- Detect products with high revenue but low customer diversity.

- Flag products vulnerable to sudden demand collapse.
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Methodology

ABC Analysis (Core Technique)

Products will be classified based on their contribution to total revenue:

- **A Category** – Top 70–80% revenue drivers
- **B Category** – Moderate performers
- **C Category** – Low contribution products

This classification will be combined with:

- Sales frequency
 - Return rate %
 - Unique customer count
 - Days since last sale
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Key Metrics Used

- Dead Stock Days (Days since last sale)
 - Return Rate (%)
 - Revenue Contribution (%)
 - Unique Customers per Product
 - Inventory Turnover Ratio
 - ABC Category
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Expected Outcomes

- Identification of products generating revenue but posing operational risks
- List of dead stock items and potential clearance strategies
- Recognition of products with dangerous customer dependency
- ABC-based prioritisation model for inventory decisions
- Actionable business recommendations such as:
 - Discount strategies for dead stock
 - Supplier review for high-return products
 - Customer diversification focus for risky SKUs

Business Impact

This analysis will enable the retailer to:

- Reduce capital locked in unsold inventory
- Improve supply chain decision-making
- Strengthen quality control strategy
- Minimise customer dependency risk
- Increase long-term profitability and stability