



# Wholesale Sales Analytics: End-to-End Data Project

This project analyzed over a million wholesale transactions, using Python, SQL, and Tableau. We dissected two years of sales data to uncover critical trends in revenue, customer behavior, product performance, and returns. The outcome is a comprehensive analytics pipeline with six interactive Tableau dashboards, providing an end-to-end business view.



Python (Pandas, NumPy)



PostgreSQL



Tableau



# Addressing Business Blind Spots

Before this project, the company operated with limited insight into several critical business areas. This lack of visibility hampered strategic decision making in inventory management, customer engagement, and market expansion. Understanding these gaps was the first step towards building a data driven strategy.

- Seasonal sales patterns
- Top customer segments
- Product performance
- Return behaviour and causes
- Geographic profitability
- Inventory inefficiencies

# Project Objectives: Illuminating the Path Forward

Our primary goal was to establish a unified single source of truth for all sales performance data. This foundational step would enable deeper understanding and proactive measures across various business functions, from product management to regional sales strategy.

## Single Source of Truth

Consolidate sales data for reliable reporting.

## Customer Insights

Understand retention and revenue concentration.

## Product Performance

Identify top and bottom performing products.

## Returns Analysis

Pinpoint operational gaps causing returns.

## Regional Performance

Compare and optimise geographic sales.

## Ongoing Monitoring

Deliver interactive dashboards for continuous oversight.

# Key Performance Indicators: A Snapshot

A high-level overview of key metrics derived from the comprehensive sales data analysis. These figures provide a quick insight into the scale of operations and areas requiring immediate attention, particularly regarding returns.

**£20.97M**

Total Revenue

**11.4M+**

Units Sold

**5,939**

Registered Customers

**240K+**

Guest Orders

**£523**

Average Order Value

**9.3%**

Return Rate

**7.28%**

Revenue Lost to Returns

**5,000+**

SKUs Analyzed

Analysis covered transactions from **2009–2011**, offering a robust historical perspective.

# Key Insights: Unveiling Critical Trends

Our deep dive into the transaction data revealed several crucial insights across revenue, customer behaviour, product performance, returns, and geographic distribution. These findings are pivotal for strategic adjustments.

- **Revenue:** Strong seasonal peaks in Q3–Q4 due to holidays, indicating a low-margin, high-volume business model with sales concentrated between 10 AM and 3 PM.
- **Customers:** The top 20% of customers contribute to 77% of total revenue, with a 72% repeat purchase rate. A significant 240K+ guest orders highlight an opportunity for conversion.
- **Products:** Decorative items are top sellers by unit volume, but many SKUs show minimal movement. Fragile and electrical products are major drivers of returns.
- **Returns:** A 9.3% unit return rate translates to 7.28% revenue loss. Long distance shipments have higher damage rates, and data entry errors frequently inflate return logs.
- **Geography:** The UK and neighboring European markets are strongest. Distant markets have higher return rates, indicating minimal expansion outside Europe at present.

# **Interactive Dashboards: Your Data at a Glance**

We developed six interactive Tableau dashboards to provide continuous, easy access to these insights, empowering stakeholders with real-time data for informed decision-making.

# Dashboard 1: Executive Summary & KPI Overview

High-level dashboard consolidating key performance indicators and critical metrics for executive decision-making.



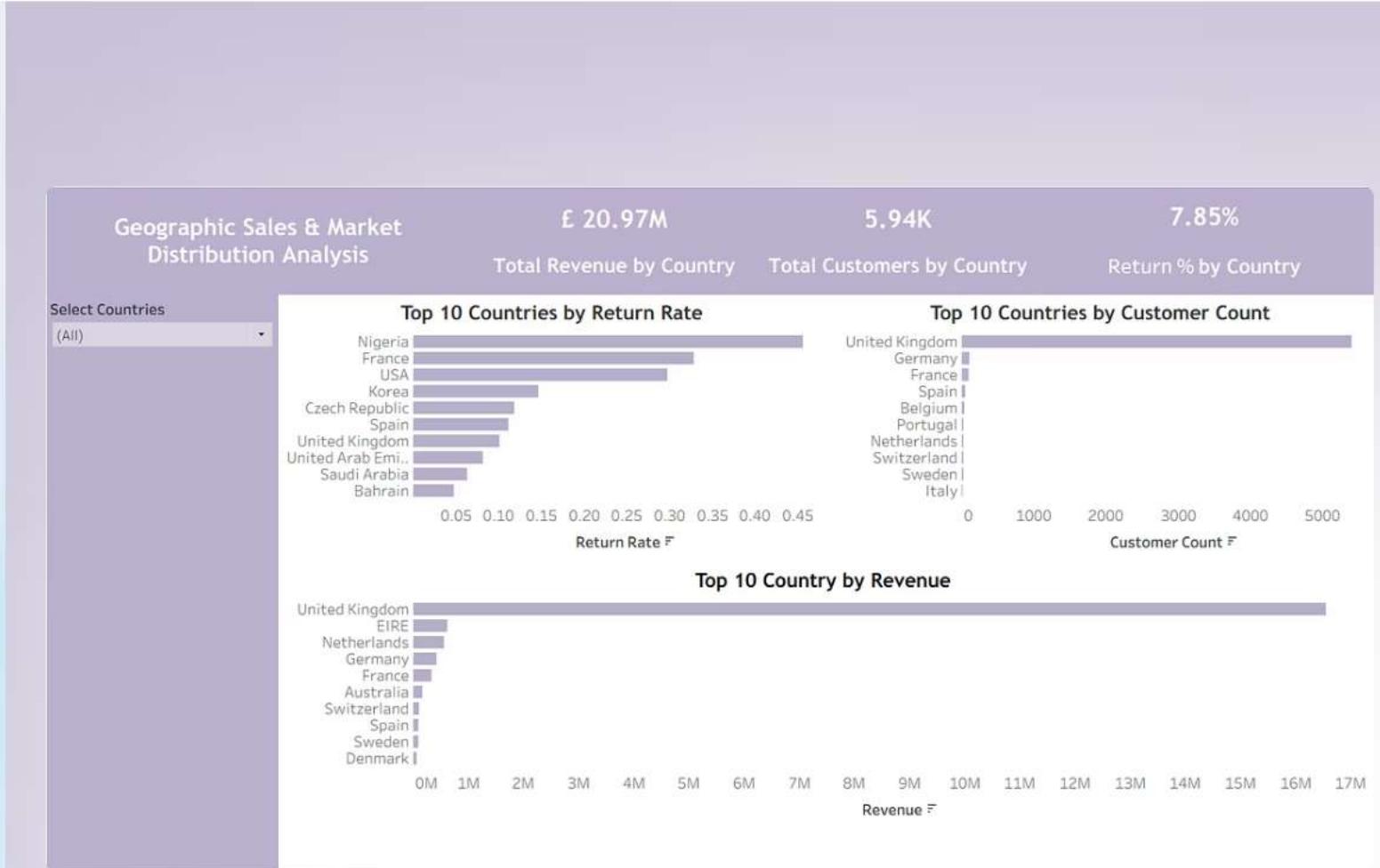
## Dashboard 2: Sales & Revenue Performance

This dashboard provides key metrics around revenue patterns, seasonal trends, and sales performance over time, offering a clear overview of the company's financial health and market dynamics.



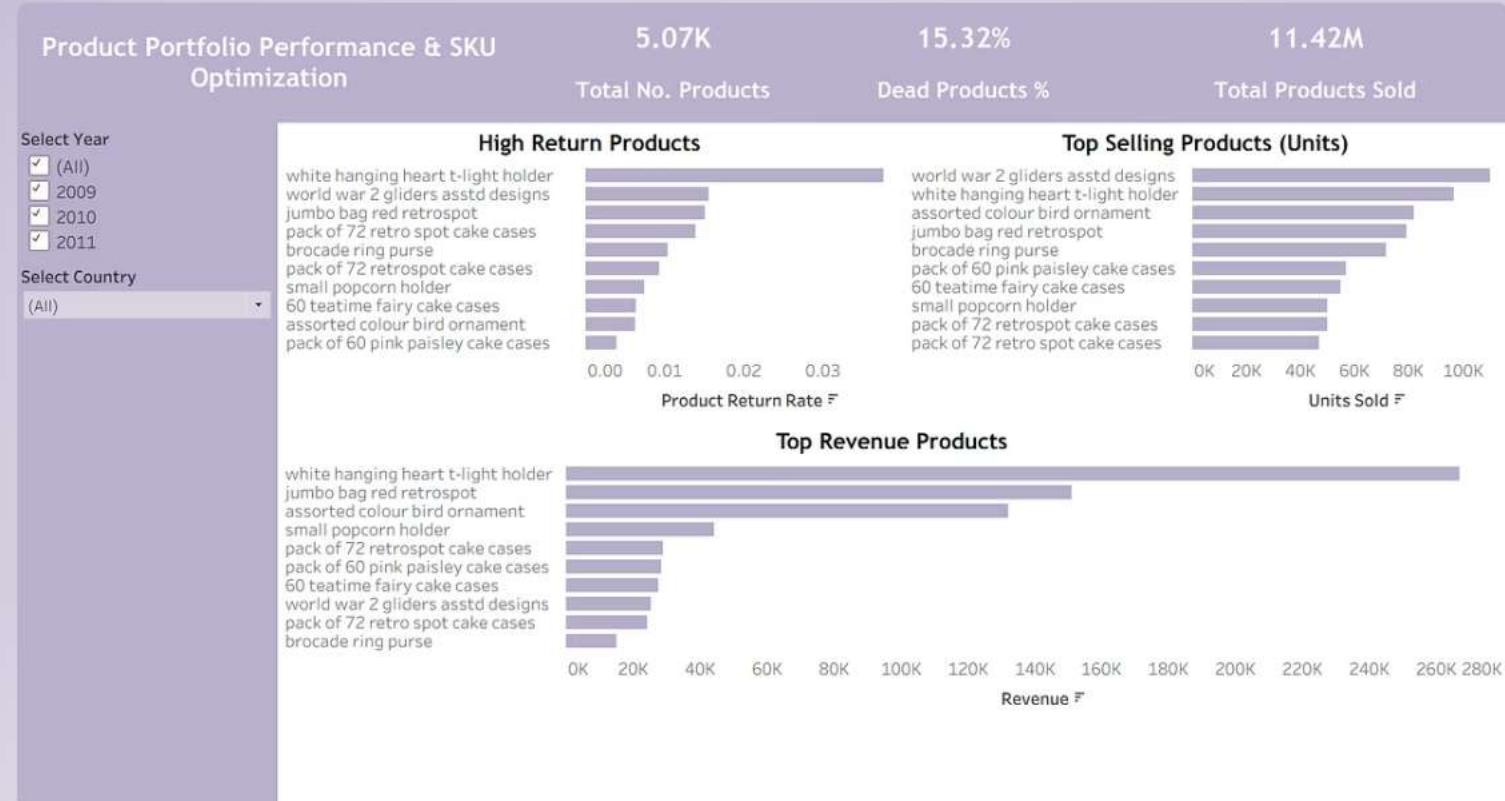
# Dashboard 3: Geographic Sales & Market Distribution Insights

Regional sales breakdown, market profitability, returns by countries and geographic expansion opportunities.



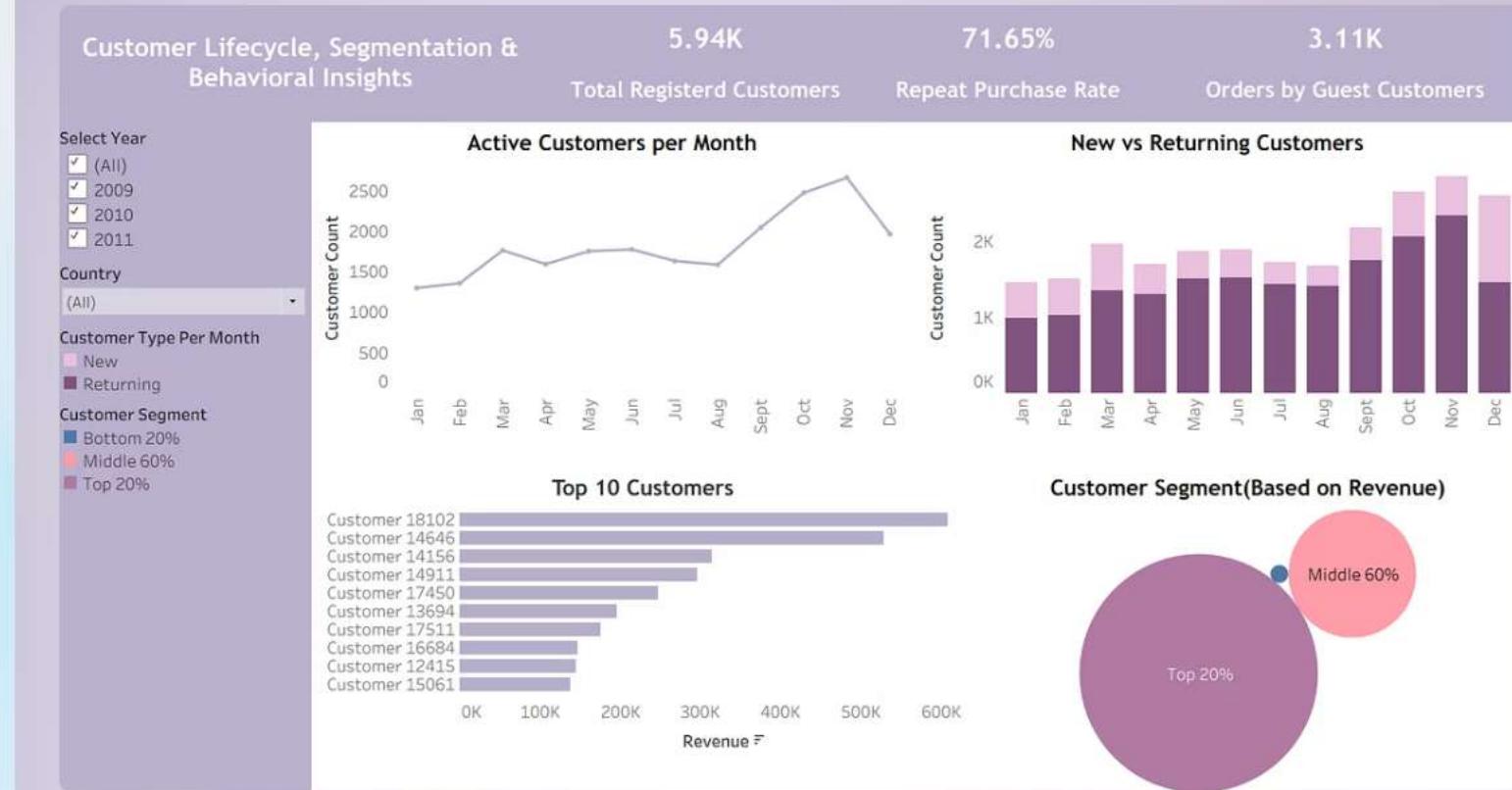
# Dashboard 4: Product Performance & SKU Analysis

Detailed view of product metrics including top sellers, SKU performance, and inventory movement patterns.



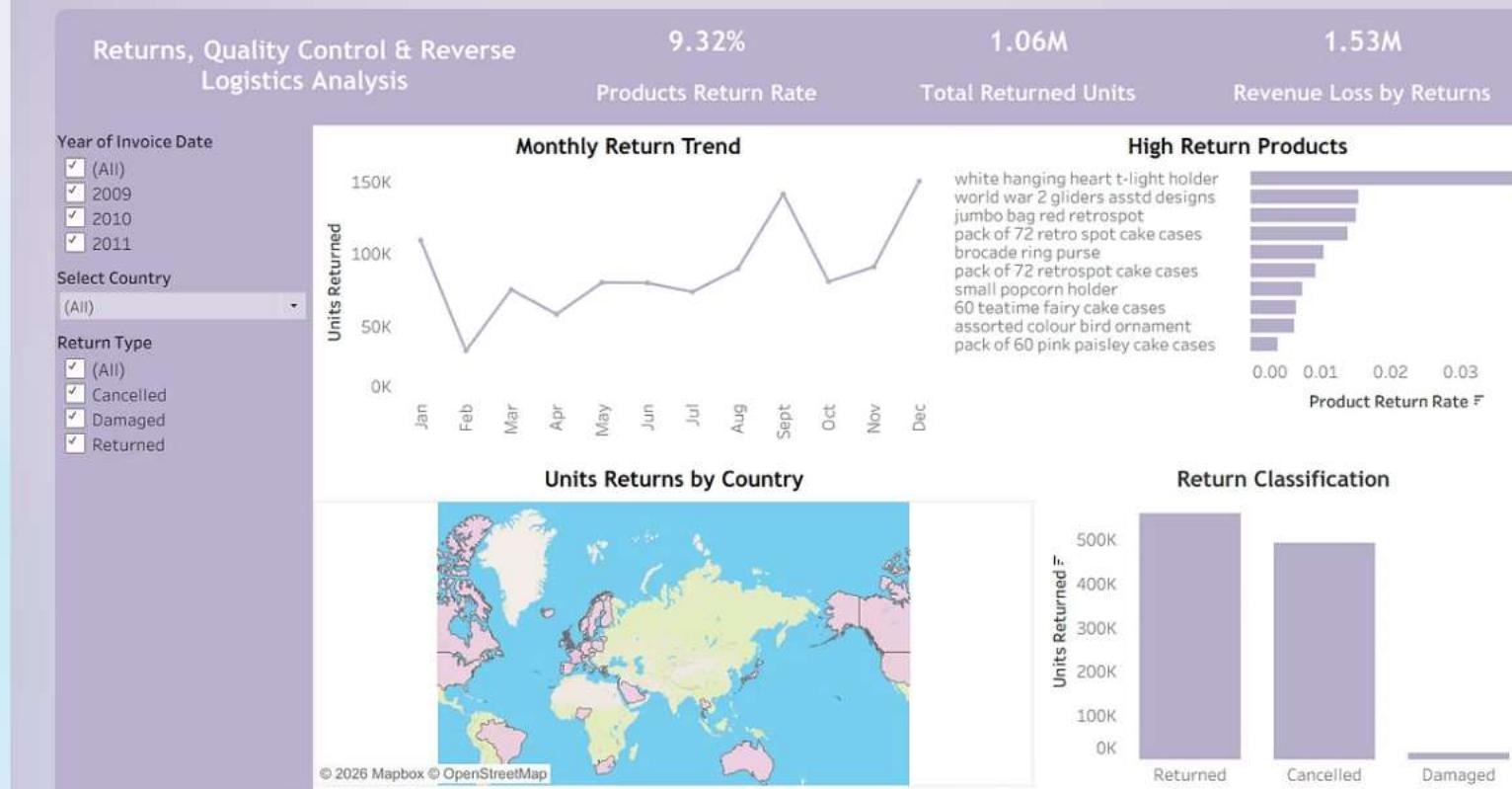
# Dashboard 5: Customer lifecycle, Segmentation & Behavior

Overview of customer insights including top segments, repeat purchase rates.



# Dashboard 6: Returns & Quality Metrics

Analysis of return rates, causes of returns, and quality issues by product category and region.



# Operational Challenges Identified

The analysis pinpointed several key operational issues that, if addressed, could significantly enhance efficiency and profitability.

## Customer Concentration

Revenue is heavily reliant on a small segment of customers, posing a risk.

## Fragile Product Damage

Fragile items frequently lead to high damage-related returns.

## Guest Transaction Volume

Excessive guest transactions hinder effective customer retention tracking.

## Data Discrepancies

Data-entry errors lead to inflated and misleading return logs.

## Product Catalog Bloat

A surplus of dead or low-selling products creates inventory inefficiencies.

## Limited Market Reach

Weak presence and high return rates in non-European markets.

# Actionable Recommendations for Growth

Based on our findings, we propose a series of strategic recommendations designed to optimise operations, boost customer loyalty, and expand market presence effectively.

## 1 Strategic Stocking

Increase inventory before Q4 holidays and reduce in Q1 to align with seasonal demand.

## 2 Customer Loyalty Programmes

Implement loyalty and priority programmes for top-tier customers to secure revenue.

## 3 Guest Conversion Initiatives

Develop strategies to convert guest buyers into registered customers for better tracking and retention.

## 4 Packaging & Quality Control

Enhance packaging and implement stricter QC for fragile and electrical products to minimise damage.

## 5 Product Catalog Optimisation

Remove dead SKUs and streamline the product catalog to improve inventory efficiency.

## 6 Market Strategy Refinement

Strengthen European market presence and refine long-distance shipping protocols for distant markets.

# Tangible Outcomes and Future Impact

This project has successfully delivered a comprehensive analytics system that provides unprecedented visibility and actionable intelligence across key business functions.

## Enhanced Visibility

Clear insights into sales, customers, products, returns, and markets.



## Smarter Inventory

Data-driven decisions for optimised stock levels and reduced waste.



## Operational Efficiency

Identified areas to reduce operational errors and streamline processes.

## Improved Retention

Strategic insights for strengthening customer relationships and loyalty.



## Intelligent Scaling

Enables the company to expand and grow effectively based on solid data.



# Conclusion & Thank You

Thank you for your time and attention. This project represents a significant step towards a more data-driven and efficient wholesale operation. For a detailed breakdown of the analysis and findings, please refer to the comprehensive case study PDF.

CASE STUDY PDF

FURTHER DETAILS