

Dataco supply chain

Introduction

The Dataco Supply Chain dataset provides a complete view of how products move from order placement to final delivery.

This analysis focuses on understanding:

- How efficiently the supply chain is performing
- Where delays and bottlenecks exist
- Which regions, categories, and customer segments drive business growth
- How sales, profit, and deliveries vary across the dataset

The goal is to uncover insights that support better decision-making, improved delivery reliability, customer satisfaction, and profitability.

Project Objectives

- Analyze overall sales, orders, and profit to assess financial performance.
- Evaluate delivery performance (late vs on-time) to identify inefficiencies.
- Study order trends over time to detect seasonal patterns and demand shifts.
- Understand city, region, and market-level performance.
- Analyze product categories & segments to determine strong and weak areas.
- Identify bottlenecks in shipping and order processing.
- Provide data-driven recommendations to enhance supply chain efficiency.

Data Cleaning

Work done in Python:

- Removed **duplicate** records
- Replaced or removed **missing values**
- Converted **string dates** → **proper date format**
- Standardized numeric fields
- Corrected inconsistent category names
- Exported dataset for SQL & Power BI

Outcome: Clean and structured dataset ready for analysis.

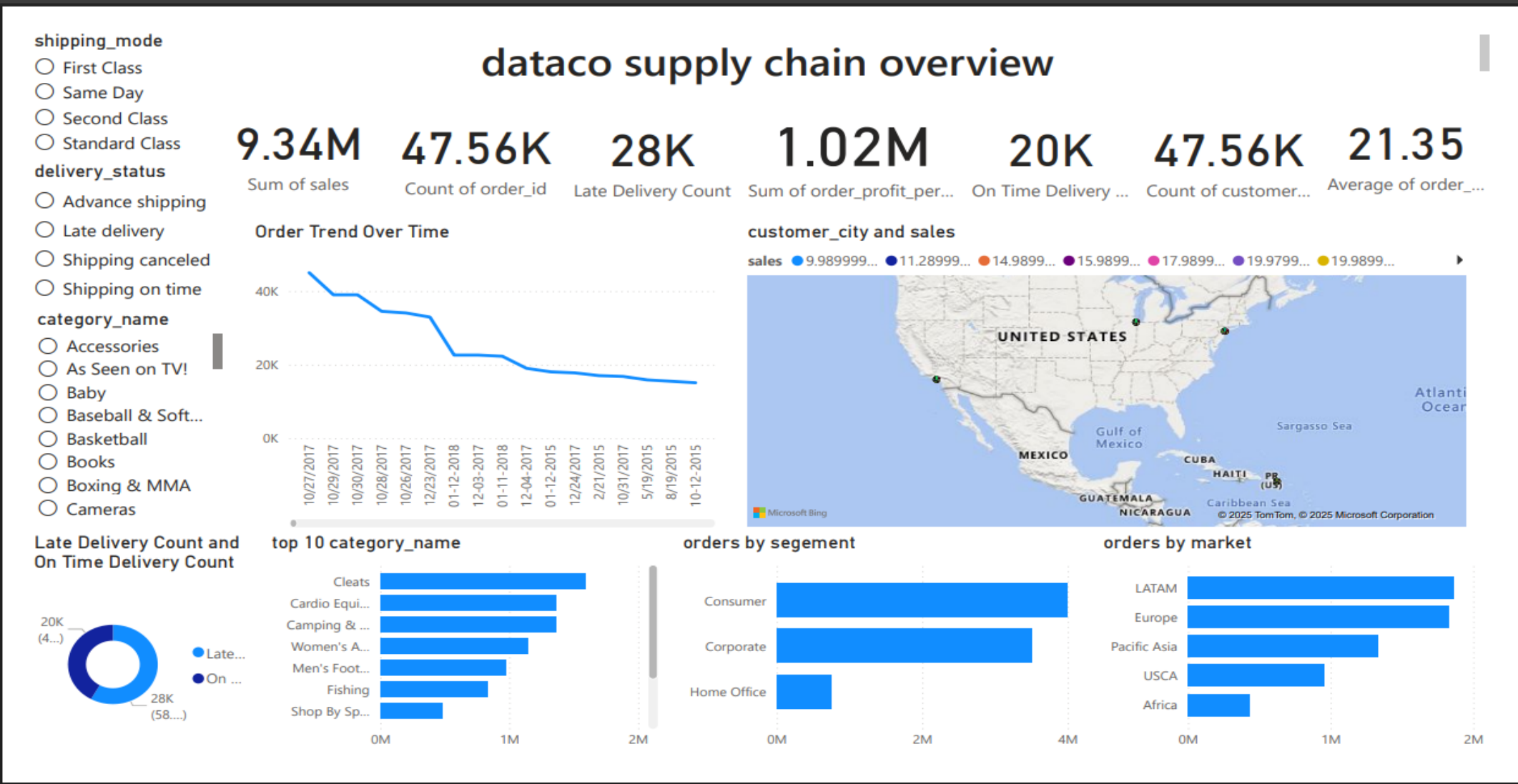
Data Analysis

Key SQL activities performed:

- Identified **top-selling** markets, segments & categories
- Analyzed **profitability** across regions
- Studied **shipping mode efficiency**
- Calculated **discount impact** on profit
- Extracted **order trends** (by month & year)
- Found **most frequently ordered** products

Outcome: Strong analytical foundation for the dashboard.

Dashboard



Dashboard KPIs

The Power BI Dashboard Highlights:

- **Total Sales:** 9.34M
- **Total Orders:** 47.56K
- **Late Deliveries:** 28K
- **On-Time Deliveries:** 20K
- **Total Profit:** 1.02M
- **Avg Order Processing Time:** 21.35 Days
- **Customer Count:** 47.56K

These KPIs give a **quick snapshot of overall supply chain health.**

Order Trend Over Time

The line chart shows:

- How order volume changes month-to-month
- Seasonal variation in sales and demand
- Periods of high order spikes followed by drops

Insight: The business experiences **clear seasonal patterns**, indicating the need for better forecasting, staffing, and inventory planning.

City-wise Sales

The map shows:

- Which cities contribute most to overall sales
- Geographical distribution of customer purchases
- Regional areas that generate strong or weak revenue

Insight: Some cities perform extremely well, while others contribute very little — showing uneven market penetration.

Delivery Performance

Comparison shows:

28K Late Deliveries

20K On-Time Deliveries

Insight: More than **60% of deliveries are delayed**, indicating a major logistics problem.

This directly affects customer satisfaction and operational efficiency.

Top 10 Categories by Sales

Highlights:

- Highest-selling categories generate the largest share of revenue
- Some categories show much lower contribution

Insight: Inventory planning, promotions, and procurement should prioritize top-performing categories.

Insights & Findings

- Order volume shows seasonal fluctuations.
- Sales are concentrated in a few key cities/regions.
- High late delivery rate indicates operational delays.
- Strong dependence on Consumer segment.
- Product category sales are imbalanced.
- Markets like Africa show low performance, indicating growth opportunities.

Conclusion

- Business has strong sales in specific regions and categories but overall performance is uneven.
- Delivery inefficiencies (60% late) significantly impact customer experience.
- Market and segment distribution is unbalanced, showing room for growth.
- There is a need to optimize logistics, inventory planning, and segment strategy.

Recommendations

- **Improve logistics & delivery process**
 - Identify reasons for delays
 - Improve partner performance & route optimization
- **Strengthen high-performing regions**
 - Better stock availability
 - Region-focused marketing
- **Target low-performing markets**
 - Promotions, discounts, partnerships
- **Optimize product category strategy**
 - Invest more in top-sellers
 - Reduce low-moving inventory
- **Customer Segment Strategy**
 - Loyalty programs for consumers
 - Expand focus on Corporate & Home Office clients
- **Better Forecasting**
 - Use trend data for inventory & manpower planning