

Supply Chain Analytics Dashboard

Advanced Statistics Project

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Agenda

Introduction

Research Inspiration

Dashboard Overview

Key Metrics

Timeline

Visual Analytics

Summary

Team

Conclusion

Introduction

Project Overview

- Developed an interactive Streamlit dashboard for supply chain analytics.
- Analyzed large-scale global supply chain data.
- Extracted key performance indicators related to delays, profit, and geography.
- Applied statistical methods to interpret operational insights.

Research Inspiration

- This project is inspired by academic research in supply chain analytics.
- Reference paper:
 - Carbonneau et al. (2008), *European Journal of Operational Research*
 - Focuses on data-driven analysis for supply chain performance evaluation.
- Instead of direct replication, the analytical logic was adapted to:
 - analyze delivery delays,
 - evaluate profitability patterns,
 - identify geographic performance differences.

Dashboard Overview



Supply Chain Analytics Dashboard



Key Metrics

Total Orders

180519

Average Profit

21.97

Late Delivery (%)

57.28

Key Metrics

Key Performance Indicators

- **Total Orders:** 180,519
- **Average Profit per Order:** 21.97
- **Late Delivery Rate:** 57.28%
- **Most Profitable Category:** Computers

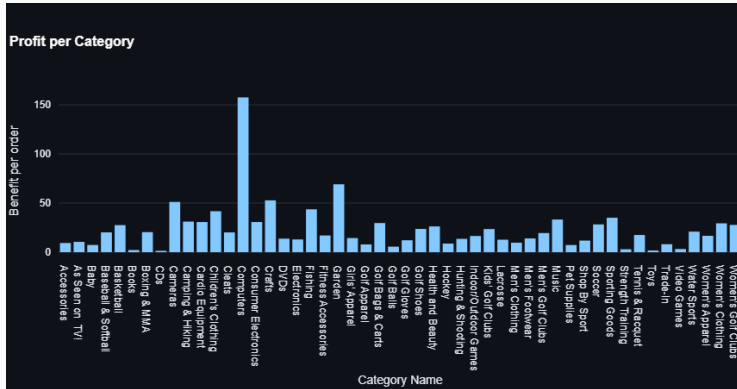
Timeline

Supply Chain Journey

- Order
- Processing
- Shipping
- Delivery

Visual Analytics

Profit by Category

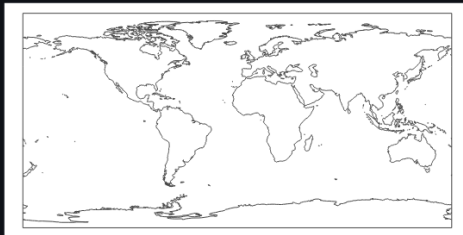


Delivery Delay Distribution



Late Deliveries by Country

Late Deliveries (%) by Country



Is_Late

0.573

0.5728

0.5726

0.5724

Summary

Operational Findings

- Delivery delays affect more than half of all orders.
- Profitability varies significantly across product categories.
- Country-level performance exposes major bottlenecks.

Dashboard Advantages

- Interactive KPI tracking.
- Clear, interpretable data visualizations.
- Geographic insights for strategic decisions.

Team

Team Members

Sam Collin Allen Joseph Sahaya Jude

- Data Cleaning & Preparation
- KPI Engineering
- Dashboard UI Development

Yogesh Muthukumar

- Exploratory Data Analysis
- Visualization & Insights
- Report & Presentation Lead

Conclusion

Conclusion

- The dashboard highlights critical improvement areas in supply chain operations.
- Delivery delays present an opportunity for major optimization.
- Product-level profitability insights support strategic planning.
- Future Enhancements:
 - Predictive models for delay forecasting
 - Real-time API integration
 - Automated anomaly detection

Thank You!

Questions?