Analyzing the Impact of Supply Chain Factors on Order Delivery Performance and Profitability in an E-commerce Environment

Project Abstract:

This project navigates the intricacies of e-commerce supply chain management to elevate order delivery performance and drive profitability. Utilizing advanced statistical models, the study decodes relationships between supply chain variables, customer factors, and financial outcomes.

Analyzing shipping modes, delivery statuses, and regional influences, the research unveils historical patterns and projects future trends. With SMART research questions, the study extracts actionable insights to boost operational efficiency and customer satisfaction.

Extending into predictive modeling with regression techniques, the project forecasts delivery times and identifies potential risks. By integrating these findings, businesses can proactively optimize their supply chain, aligning logistics with customer expectations and financial objectives. The research offers strategic recommendations for businesses striving for supply chain excellence in the dynamic landscape of e-commerce.

Overall Goals:

The overall goals of this project are to unravel the intricate dynamics of e-commerce supply chains, identify key factors influencing order delivery performance and profitability, and provide actionable insights for businesses to optimize their operational strategies and enhance customer satisfaction in a competitive market. Through advanced statistical modeling and analysis, the project aims to contribute valuable knowledge and practical recommendations for achieving supply chain excellence in the dynamic landscape of online retail.

Research Based (Smart) Questions:

- How do different shipping modes affect the delivery performance in the supply chain dataset?
- Can we identify patterns or trends in customer segments that are more prone to late deliveries, and how does this impact order profitability?
- By conducting regression analysis, can we predict the expected delivery time based on specific factors, and how accurate are these predictions in different regions?
- How can we optimize the supply chain process to reduce the average days for shipping without compromising product quality?
- Are there specific bottlenecks or inefficiencies in the current supply chain that, when addressed, can lead to a noticeable improvement in efficiency?
- What is the projected timeline for implementing and testing the efficiency improvements?

- What are the average late delivery risks and profit margins associated with each shipping mode, and how do these metrics vary across product categories?
- How can strategic decisions regarding shipping modes be optimized to enhance overall supply chain performance and customer satisfaction?

Dataset Link:
https://www.kaggle.com/datasets/shashwatwork/dataco-smart-supply-chain-for-big-data-analysis

GitHub Repository:
https://github.com/NemiMakadia/IDS_Supply_Chain/settings/access

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