

Sales & Shipping Overview (2020 - 2023)

SUPERSTORE RETAIL COMPANY

Business Intelligence (BI) Project
Created and designed by:

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Project Overview

Brief + Aim

This project involved building a **two-page interactive dashboard** in **Looker Studio** to analyze and visualize **sales and shipping performance** using **10,000+ rows** of transactional data from a Superstore Retail business (2020-2023).

My goal was to deliver **executive-ready insights** that integrate **descriptive and diagnostic analysis** with **predictive benchmarks**, enabling data-driven decisions across departments.



Objectives

Supporting Decision-Making
Through Data-Driven Insights

Identify **key KPIs** to monitor sales and shipping performance effectively. Main KPIs include *total sales*, *number of orders*, *average order values*, *profit margin*, and *average shipping time*.

Apply **segmentation techniques** to gain a comprehensive understanding of sales and shipping performance across product categories, customer segments, and regional metrics.

Support **strategic planning** by highlighting high and underperforming segments, analyzing regional gaps, and evaluating seasonal trends.

Skills Acquired



Data Visualization

- **Scorecards** (e.g., Profit, Sales, Return Rate per Segment)
- **Bar & Stacked Bar Charts** (e.g., Sales by Segment & Shipping Status by Mode)
- Time Series Charts (seasonal sales trends per category)
- Geo Bubble Maps & Heatmaps (regional sales intensity & delay distribution)

Calculated Field with SQL Queries

Constructed calculated fields using a combination of arithmetic formulas and SQL-based functions such as CASE WHEN, DATEDIFF, IF, and COUNT, including:

- **Average Order Value**
- **Return Rate & Status**
- **Profit Margin Ratio & Category** (Loss, Low, Moderate, High)
- **Average Shipping Time & Status** (On-Time vs. Delayed)
- **Target Metrics** to benchmark performance

Trend Analysis Over Time

Designed time series visualization with **Year → Month → Week drilldown hierarchy**. This allowed identification of seasonal sales peaks, holiday effects, and time-based shipping performance trends per product category.

Parameters

- Dynamic, personalized goal setting based on key business metrics used

Geo Visualization

- **Bubble Geo Map:** Displayed city-level sales intensity by bubble size, colored by customer segment (Consumer, Corporate, Home Office)
- **Heatmap:** Highlighted cities with significant shipping delays, using a calculated field as indicator delay indicators.

Advanced Filtering

- Enabled dynamic exploration with control filters, including **Date range controls**, **Customer segment filters**, **Profit margin category selectors**, and **Shipping mode options**. These filters allowed granular analysis and personalization capability.

Custom Grouping and Binning

- Created custom profit margin groupings and bins with the same categories for **comparative analysis** of profit margin as both a dimension and metric.

1. Which customer segment drives the most revenue?

Insight

The Consumer segment contributes the largest share of revenue at 50.6%, followed by Corporate (30.7%) and Home Office (18.7%). The Consumer dominance reflects its large, general audience making frequent smaller purchases, which cumulatively generate substantial revenue.

Implication:



Marketing efforts should prioritize the Consumer segment through loyalty programs, targeted promotions, and seasonal campaigns to maintain and grow this core customer group.



However, Corporate customers also represent a significant revenue share and should not be overlooked, especially as they come with significantly higher average order values.



2. Which profit segment contributes most to total sales?

Insight

The Moderate profit margin segment (0.25-0.5) contributes the highest share of total revenue at approximately 55% (\$929.8K), followed by the Low segment at around 40% (\$860.6K).

Interestingly, the Loss category, representing products sold at negative margins, accounts for a substantial ~30% of total revenue (\$468.7K). Meanwhile, the High margin segment contributes the least, at just ~3% (\$38.7K).

Implication:

Prioritize selling and promoting products within the Moderate profit margin range, as they offer the most effective balance between high demand and healthy profitability. This is true as well for the Low segment, despite thinner margins, still drives meaningful revenue and may be optimized through pricing or cost adjustments.

3. How do product categories compare in terms of revenue, quantity sold, and profit margins?



Office Supplies recorded the highest order volume at 3.7K orders, contributing \$719K in sales revenue with an average profit margin of 10%.

Furniture followed with 1.8K orders, generating \$784K in sales, but had the lowest profit margin at just 2%.

Technology had the fewest orders (1.5K) but led in revenue with \$836K and a profit margin of 17%, the highest among the three.

Insight

Technology products have the highest revenue and weighted profit margin, while Office Supplies rely on volume, and Furniture products have relatively low profitability despite decent sales figures.

Implication:

- Technology items, due to their strong profitability and sales impact, are ideal for feature placement and general promotional campaigns.
- Office Supplies, driven by high purchase volume, should be supported through consistent availability and efficient logistics. However, discounting must be carefully controlled to protect profit margins for both.
- Furniture products, while generating a moderate level of sales, yield the lowest returns, indicating the need for pricing or cost adjustments. Discontinuing underperforming items in the furniture category may be necessary to maintain overall profitability.

4. Which cities in the United States stand out as top contributors to sales volume, and how do they align with customer segments?

Insight

Metropolitan cities are revenue drivers, particularly New York City, Los Angeles, San Francisco, and Seattle. They demonstrate the highest order volumes and a strong overlap between all segments, especially Consumer and Corporate buyers.



Beyond major metros, Corporate segment is also visible in semi-urban business hubs and tech communities such as Seattle, Springfield, Santa Barbara, and Reno. This shows concentrated procurement from small to mid-sized enterprises.



Meanwhile, suburban cities like Boulder (CO), Eugene (OR), Gainesville (FL), and parts of Northern Texas and Arizona show large Home Office segments. These areas are often characterized by college towns and emerging remote workers.

Implication:



Launch broad, high-impact marketing initiatives in major cities such as New York City, Los Angeles, San Francisco, Seattle, and Chicago, where all customer segments are active. Nevertheless, segment-specific marketing strategies should still be implemented, such as targeting Consumers through digital platforms with lifestyle-driven campaigns, while engaging Corporate clients via tailored B2B offerings and account-based marketing.



In Santa Barbara and Reno, design localized strategies that appeal to SMEs, offering value bundles. For college towns and semi-urban tech zones such as Boulder and Eugene, focus on home office solutions that cater to flexible work and study environments.



5. How has the sales trend evolved over time across different product categories, and what seasonal patterns can be observed?

Insight

Overall, the time series visualization from 2020 to 2023 highlights a steady upward trend in total sales year-over-year, with short-term monthly dips that reflect normal, category-specific seasonality. Nevertheless, there is a clear, category-specific sales patterns:

Technology products show consistent and sharp spikes in Q4 (October–December) each year, reflecting strong seasonal demand during the end-of-year holiday period



Office Supplies maintain a relatively stable sales pattern across months but exhibit modest increases in Q3 (July–September). These align with back-to-school demand.

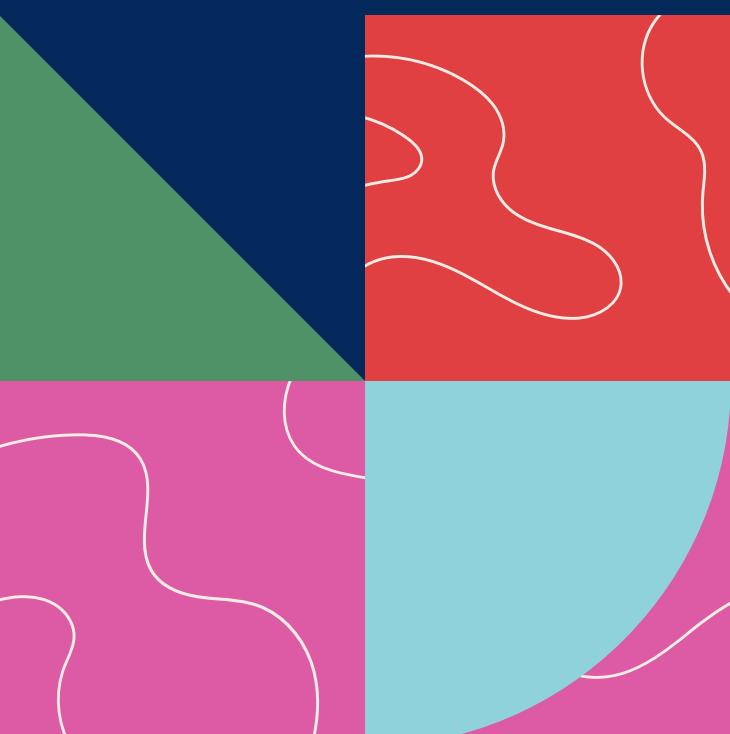


Furniture displays a more irregular trend, with moderate, less predictable sales fluctuations. Peaks normally occur in Q2 and Q3, pointing to spring and summer projects.

Implication:

 Increase inventory and logistics capacity for Technology products ahead of Q4, supported by targeted promotional campaigns and flash sales during the holiday season.

 Meanwhile, schedule Office Supplies promotions in late Q2 through early Q3 to capture demand from educational institutions and mid-year office replenishments. Strategic alignment with these peak windows will help maximize sales opportunities and operational efficiency



1. How is the shipping performance across ship modes?

Insight

- Same Day shipping is the fastest, with an average of just 0.04 days, indicating near-instant dispatch and fulfillment.
- First Class follows with an average of 2.18 days, still well within acceptable delivery standards.
- Second Class averages 3.72 days, bordering on the standard delivery threshold.
- Standard Class is the slowest, averaging 5.00 days, which exceeds the 4-day target for this method (the number is taken from the overall average shipping time across all modes).

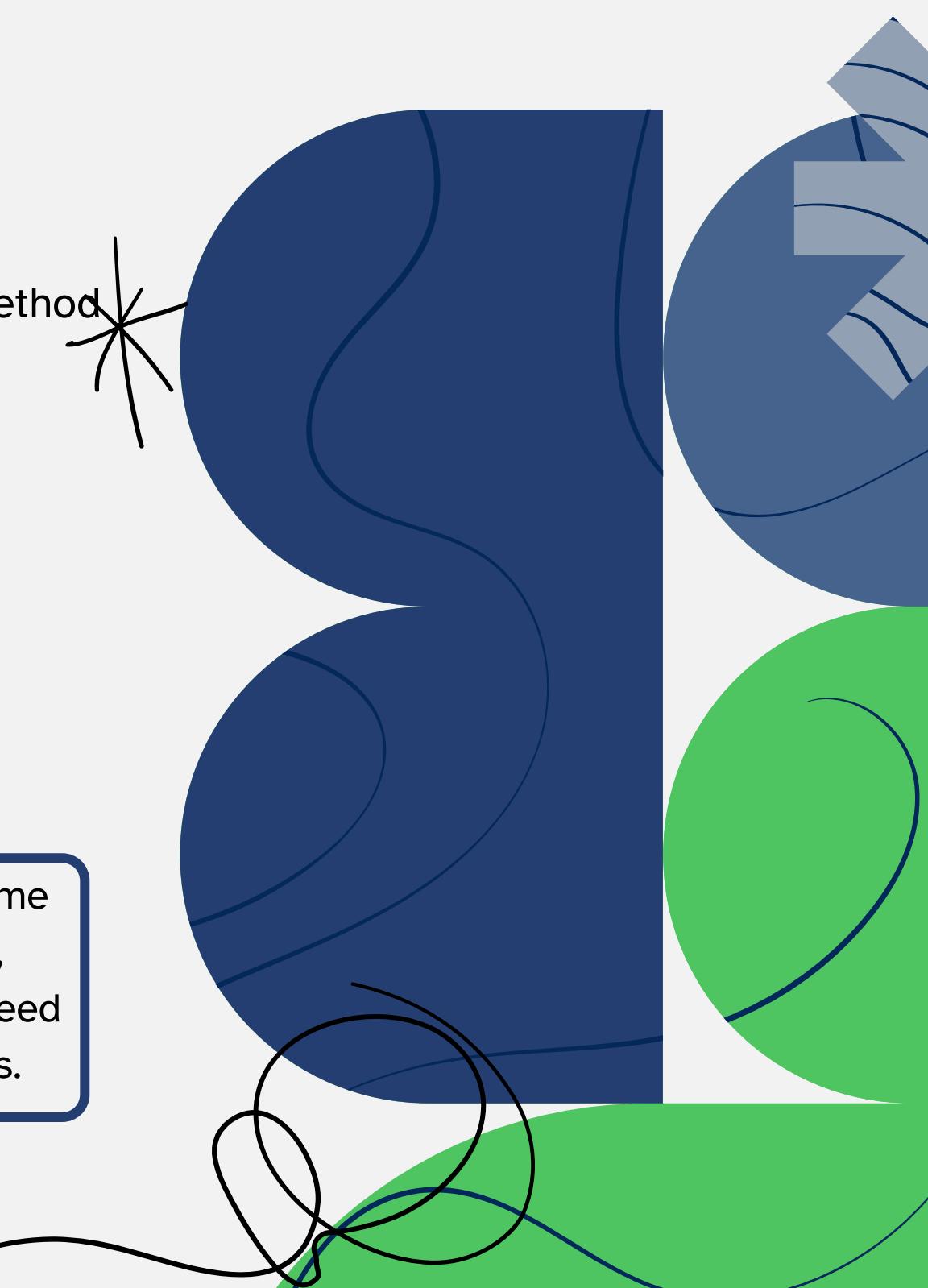
Standard Class is the most commonly used shipping method, including across all profit margin segments. This widespread use combined with its performance poses a significant risk to customer satisfaction if expectations are not properly managed.

Implication:

Set clear and realistic delivery expectations to reduce negative perceptions related to delays, especially for Standard Class.

Audit and optimize the logistic networks for Standard Class shipments to identify areas for improvement or reallocation.

Where feasible, shift order volume from Standard to Second Class, balancing improved delivery speed with manageable cost increases.



2. Where are shipping delays concentrated in the United States?

Insight

The heatmap visualization reveals that shipping delays are heavily concentrated in key cities across the Midwest and Southern United States.

Prominent red zones, indicating a high volume of delayed orders, appear in Texas (Houston, Dallas), Georgia (Atlanta), and Florida (Miami), as well as in Sparks (NV), Port Arthur (TX), and Pompano Beach (FL).

These delays could be caused by a number of logistical issues. Notably, Same Day and First Class shipping methods are rarely seen in these high-delay zones, reinforcing that Standard and Second Class shipments are the main contributors to prolonged deliveries.

Implication:

These delay-prone cities present a higher risk for customer churn rate due to dissatisfaction over delivery speed. To mitigate this, the store needs to consider expanding logistical coverage by adding secondary warehouses or partnering with regional fulfillment providers in the most affected areas. If infrastructure investment is limited, consider adjusting delivery time prediction based on city of operation to manage customer expectations,

3. Is there a correlation between shipping method and delay rate?

Insight

- Standard Class has the highest delay rate, at nearly 37%
- Second Class follows with a delay rate of approximately 24%
- First Class shows a significantly lower delay rate of under 10%
- Same Day performs the best, with delays in less than 2% of cases



These figures confirm that budget-friendly shipping options, while frequently chosen, come with higher risk of late delivery. While Standard and Second Class play a vital role in maintaining affordability and sales volume, their higher delay rates can significantly impact customer satisfaction.

Implication:

It's essential to set transparent expectations by clearly communicating typical delivery windows based on both shipping mode and geographic region.



Where possible, leverage heatmap data to identify and address high-delay zones more proactively. This could mean offering incentives, such as discounts, loyalty points, or priority customer services for affected regions.



4. How does shipping mode preference vary by profit margin segment, and what does that imply for cost control?

Insight

The bar chart mapping shipping mode usage across profit margin segments reveals that Standard Class is disproportionately used for Loss and Low profit margin orders.

High margin orders frequently utilize First Class or even Same Day delivery — options with significantly lower delay percentages and better speed performance.

Implication:

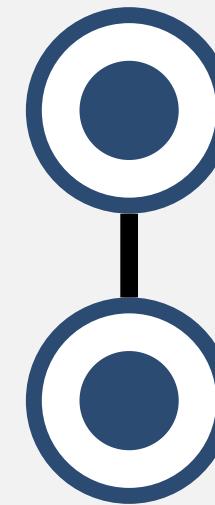
- Preserve premium delivery options (e.g., Same Day, First Class) for high-margin product orders to sustain the perception of value, justify premium pricing, and protect overall brand positioning.
- Reallocate logistics investments to regions with moderate profit margins but recurring shipping delays, especially Los Angeles, Dallas, Houston, Chicago, Indianapolis, and St. Louis. These cities have high order volumes in the Office Supplies category, which leads in sales quantity and yields mid-range profitability.



5. Which shipping modes need the most improvement to meet target delivery benchmarks for the next period?

Insight

Ship Mode	Current Avg (Days)	Target (Days)	Gap
Standard Class	5.028	4.525	+0.503
Second Class	3.777	3.399	+0.378
First Class	2.197	1.978	+0.219
Same Day	0.047	0.043	+0.004



With a 10% time reduction target benchmark:

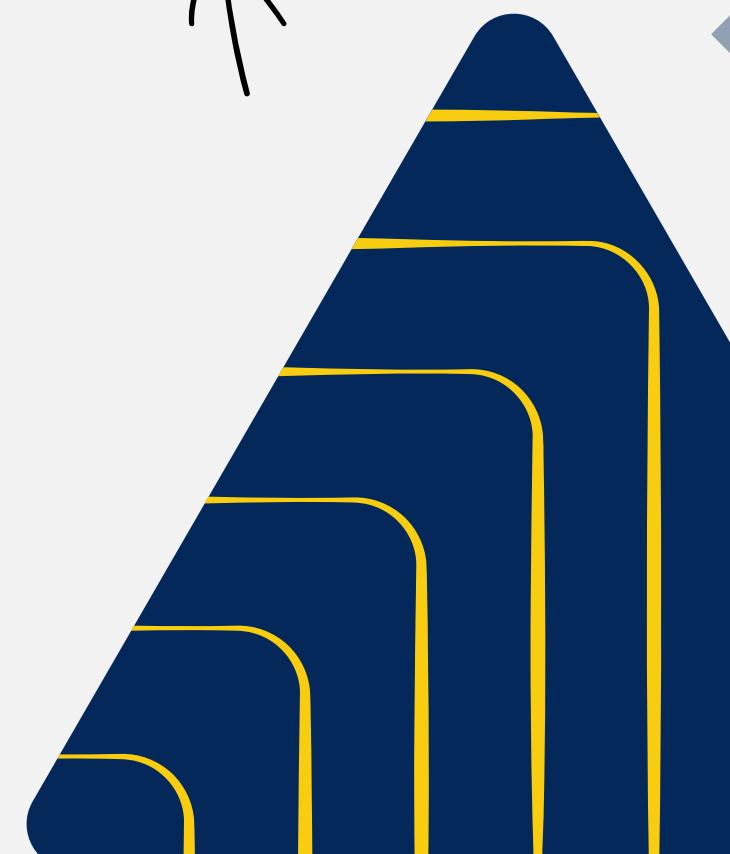
Standard Class: +0.503 days above target, equivalent to half a day, which is a meaningful delay in an e-commerce context. Standard class is responsible for over 5000 orders.

Second Class: +0.378 days above target. Second Class covers approximately 3,200 orders, out of the 10,000 total recorded sales in the dataset



Implication:

- Prioritize improvements in Standard and Second Class shipping, which together account for over 80% of orders and show the largest gaps from target. The most feasible action is focus on reducing delays through better carrier selection and delivery routing.
- If possible, invest in better logistic partnership or infrastructure in high-delay, high-revenue regions like Los Angeles, Dallas, and Chicago, using the 10% reduction target as a benchmark for ongoing performance tracking.



Thank You for Your Attention!

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