Strategic Sales Analysis and Forecasting

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1. Sales Trend Forecasting

This section presents the analysis of monthly and quarterly sales patterns, as well as forecasts for future trends using Power BI's time series tools. By leveraging a structured Date table and proper temporal relationships, multiple visualizations were developed to highlight how sales behave over time.

1.1) Analyze monthly and quarterly sales.

To analyze monthly and quarterly sales behavior, a DAX measure was first implemented to ensure proper temporal relationships within Power BI. Using this structure, two key visualizations were developed to assess performance over time. The first was a monthly sales trend chart, which revealed overall sales stability across the years analyzed, punctuated by cyclical increases and short-term drops. This visual helped identify not only fluctuations but also confirmed the presence of a sustained sales pattern. In parallel, a quarterly analysis was performed, using a DAX *YearQuarter* breakdown to compare Q1, Q2, Q3, and Q4 across multiple years. The results showed a recurring pattern where Q3 and Q4 delivered the strongest sales volumes, while Q1 typically lagged. This quarterly behavior suggests potential seasonality within the business cycle and provides a baseline for resource allocation, product launches, and operational readiness at specific times of the year.

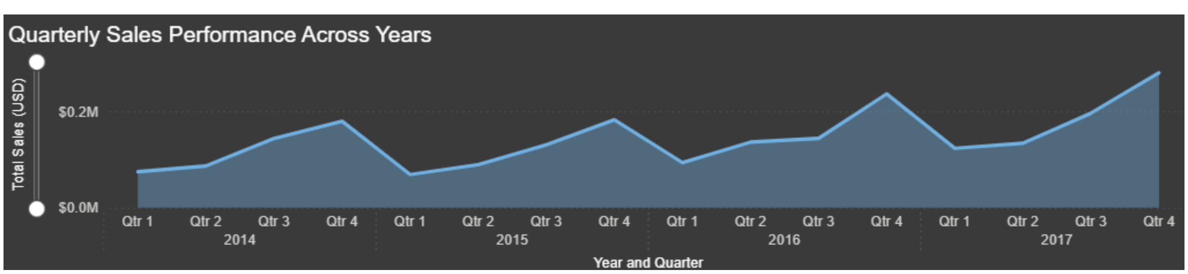

Figure 1. The quarterly sales analysis

1.2) Forecast future sales trends using Power BI's forecasting tools.

Building on this temporal analysis, Power BI's forecasting tool was applied to the monthly trend chart to project future sales behavior. Based on historical data, the forecast generated a twelve-month outlook accompanied by a confidence interval. The model indicated a continuation of the stable trend, with a slight upward momentum expected in the months ahead. This projected trajectory offers valuable insight for strategic planning, allowing the business to prepare marketing initiatives and operational efforts in advance, while maintaining agility in response to demand fluctuations.

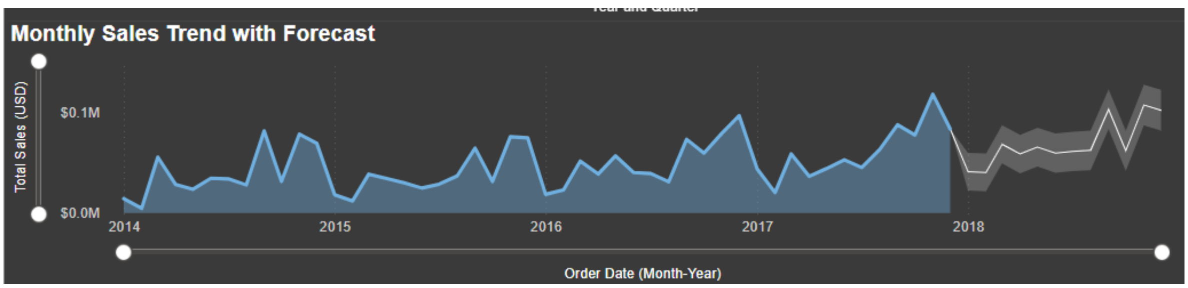

Figure 2. Monthly sales trend with 6-month forecast

1.3) Identify seasonal trends and peak periods.

Seasonal trends and peak periods were also investigated through a month-level aggregation of sales data. This visualization disregarded the year, focusing instead on how sales typically perform in each calendar month. The results were consistent with the quarterly analysis. November and December stood out as high-performing periods, likely influenced by end-of-year campaigns and holiday-related consumer behavior. Additional strong performance was observed in March and September, while sales in February and April were notably weaker. These findings confirm the presence of seasonality and provide a solid foundation for developing marketing calendars, designing promotions during high-potential months, and addressing sales dips with targeted strategies. Overall, the combination of historical analysis, forecasting, and seasonal detection allows the company to operate in a more data-driven and strategically responsive manner.

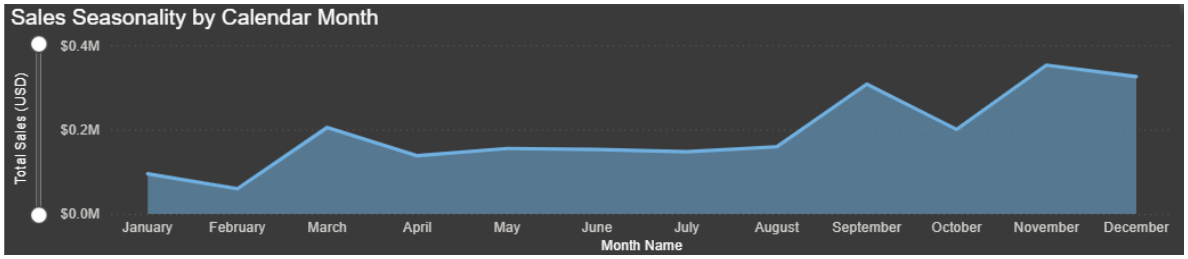

Figure 3. Average sales by calendar month

A set of key performance indicators (KPIs) was developed to complement the visual analysis using DAX to provide concise, high-impact metrics that summarize the dataset's behavior. These include the total sales across the selected period ($2.3M), the average monthly sales ($191.43K), and the maximum monthly sales ($118.45K). Additionally, the report includes the total revenue from the last full year ($1.56M) and a Year-over-Year (YoY) growth percentage of 46.88%.

These KPIs confirm that the business is experiencing strong upward momentum. The high average monthly sales indicate stability, while the YoY growth reflects a consistent increase in revenue generation. The significant sales performance in the most recent year underscores the effectiveness of current strategies, and the KPIs collectively provide decision-makers with a clear summary of sales health over time.

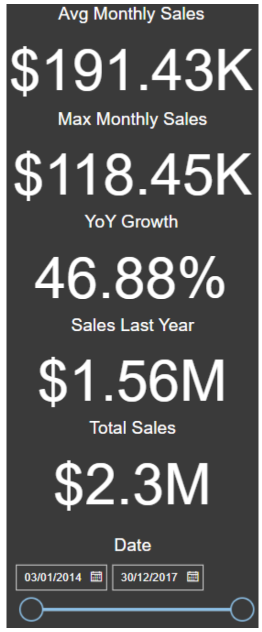

Figure 4. Key performance indicators

2) Customer & Segment Insights

2.1) Customer Segmentation

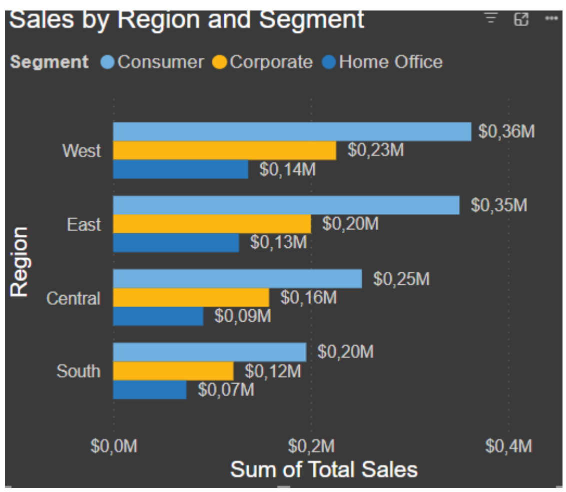

Figure 5. Sales by Region and Segment

The analysis conducted at a customer level shows that the proportion of Consumers, Corporate, and Home Office customers is maintained throughout the different sales regions of the company. The Consumer segment has the highest sales, being the West region the one with the highest amount, reaching $360K, following are the East and Central regions with lower sales but still maintaining the proportion compared to other customer segments.

2.2) Customer's Purchasing Behavior

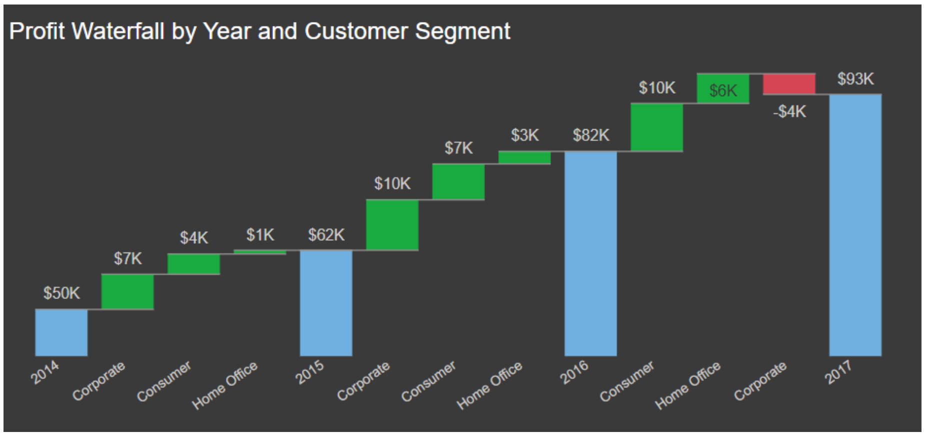

Figure 6. Profit Waterfall by Year and Customer Segment

This waterfall shows the contribution of every customer segment to the annual profit growth. Corporate customers led the profit growth through the years 2014 and 2015 but shows a strong decline in 2016 with a negative profit. A deeper dive into these customers' sales is necessary to figure out the root cause to address the issue and revert this behavior, or in case of an irreversible problem find the correct customers to compensate the negative impact.

A further analysis was performed where customers were divided into positive and negative, giving a positive status to customers whose profit sum is positive and negative to the customers generating a negative profit at the end of the year.

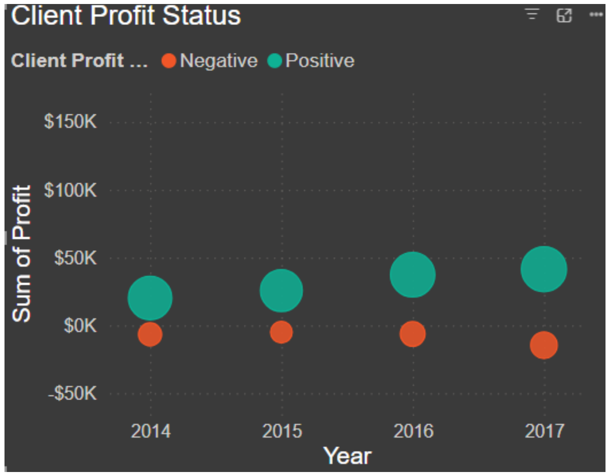

Figure 7. Client Profit Status

In this chart, after filtering only the corporate clients, it is possible to see that the number of negative customers (size of the bubbles) has grown slightly in the past 2 years. The decline in profit is caused by two main factors: first, the decrease in profit from the positive clients, and second, the increase in negative profit from the negative clients, creating a gap that the positive customers cannot close. This raises an important question: why does the company have customers that decrease its profit? The pricing team is advised to review the discounts these customers are receiving to prevent further losses.

3) Product Analysis

3.1) Product analysis by category and sub-category

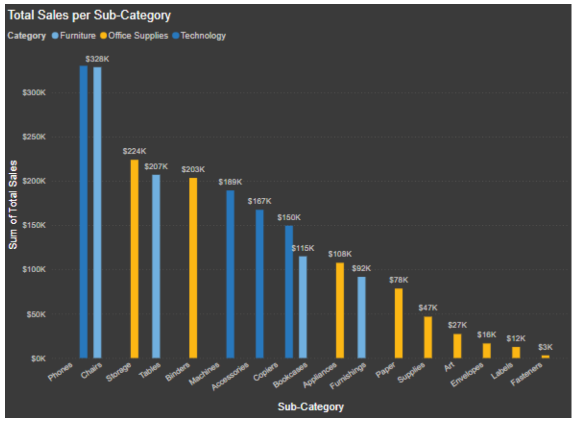

Figure 8. Total Sales per Category and Sub-Category

The analyzed dashboard provides a detailed breakdown of sales behavior by product category and sub-category. Out of the $2.3M in total sales and 38K products sold, the top performing sub-categories were Phones, Chairs, and Storage, interestingly belonging to different categories. However, despite Phones being the highest-selling sub-category, the Technology category appears only once in the top five. Still, there is a noticeable trend, as all technology-related products consistently rank within the top 10 sub-categories in terms of sales. Based on this, it could be inferred that technological products generate the most revenue for the company, whereas office supplies show significant variation and dominate the lowest-performing sub-categories. Given this disparity, it3.2 would be valuable to analyze the profitability of office supplies more thoroughly and assess whether adjustments are needed to improve overall performance.

3.2) Top and bottom performing products

Figure 9. Top and Bottom Performing Products

Two of the three top-performing products fall under the Technology category, yet they are not part of the highest-selling Technology subcategories (Phones, Chairs, and Storage). This suggests an opportunity to develop marketing strategies for these specific products, aiming to increase their sub-category (Copiers and Machines) sales. Understanding what attracts customers to these items could help identify similar products within the same subcategory or category that might benefit from targeted marketing efforts to drive higher sales.

On the other hand, the lowest performing products, while belonging to different subcategories, are all part of the Office Supplies category. This reinforces the previously stated idea that a detailed profitability analysis of this category could be beneficial. Assessing whether adjustments or cuts need to be made could help optimize overall profit and ensure resources are allocated efficiently.

3.3) Product Analysis by season

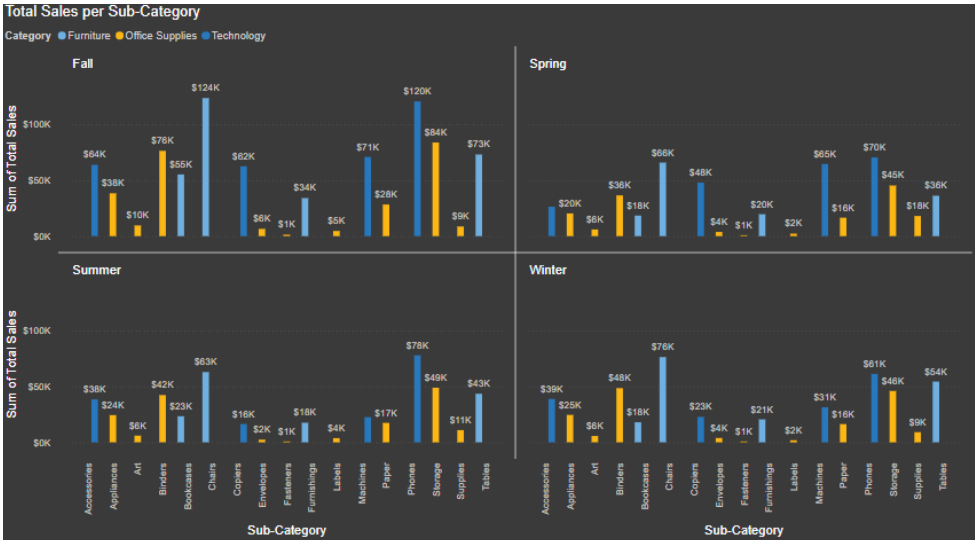

Figure 10. Total Sales by Category and Sub-Category per Season

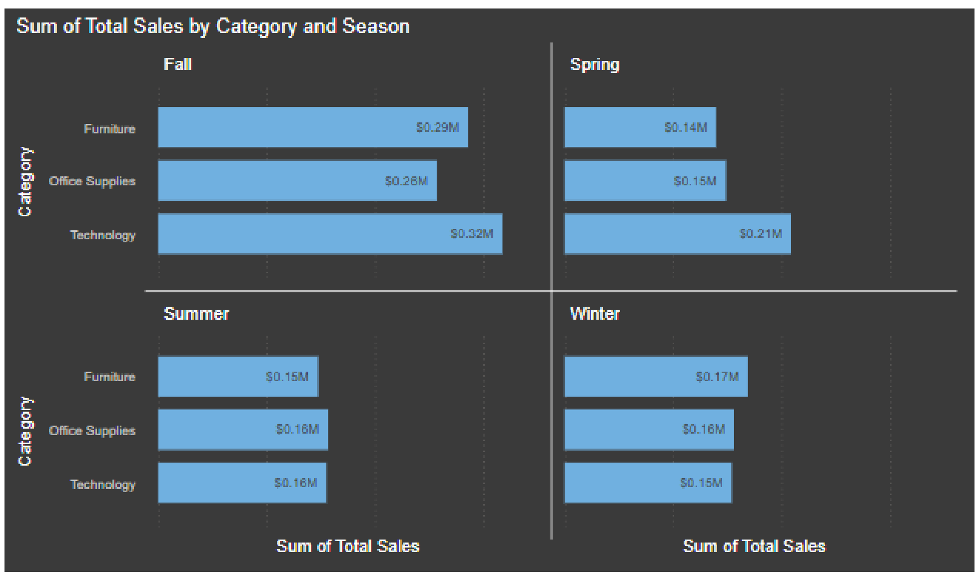

Figure 11. Total Sales by Category per Season

Season	Total Sales	Quantity
Fall	$860,434.0014	13941
Spring	$497,796.4291	7802
Summer	$459,000.8393	8169
Winter	$479,969.5905	7961

Figure 12. Total Sales and Quantity by Season

During the Fall season, total sales amounted to $860.43K, with 14K units sold across various product categories. The Furniture category led the way, driven by strong performance in the Chairs sub-category, followed by Phones from the Technology category and Storage from the Office Supplies category. Sales during Fall appear to be evenly distributed, though Office Supplies still rank among the lowest-performing sub-categories. However, with two Office Supplies sub-categories appearing in the top five, the data suggests a more balanced performance across categories during this season, indicating potential stability in consumer demand.

During the Spring season, total sales amounted to $497.8K, with 7802 units sold across various product categories. Office supplies tend to underperform, with most products landing in mid-to lower sales sub-categories. Meanwhile, technology products remain steady, consistently leading the top sales subcategories. Furniture shows a more balanced distribution overall, with chairs standing out as the most profitable subcategory.

During the Summer season, sales hit their lowest point, totaling $459K with 8,169 units sold. This raises the question of whether stronger promotional efforts or new business strategies could help boost summer sales, such as offering seasonal promotions or expanding into new products that attract more customers.

Phones lead as the best-selling subcategory, and considering the season, it may be beneficial for the company to explore products like laptops, video-cameras, and/or instant cameras to further strengthen the technology category, which remains the most dominant. Additionally, analyzing top-performing furniture, especially chairs, could reveal opportunities for bundling laptops with desk chairs to enhance sales. Studying key subcategories like phones, chairs, and storage across technology, furniture, and office supplies may also help develop strategies to improve overall performance.

During the Winter season, while sales are not at their lowest overall, the number of units sold does reach its lowest point, totaling 7,961. Unlike other seasons, the top-performing Office Supplies subcategory shifts from Storage to Binders, making it worth investigating what factors contributed to this change. Additionally, two technology subcategories, Furnishing and Bookcases, fall into the lower half of sales, highlighting the need to identify what caused this decline.

However, Phones and Chairs continue to be top-selling subcategories across all seasons, making them strong points for analysis. If possible, successful marketing strategies for these products could be adapted to others. Furthermore, understanding the specific features that attract customers to these items may reveal opportunities to highlight similar aspects in other products, ultimately boosting overall sales.

3.4) Product Analysis by Region

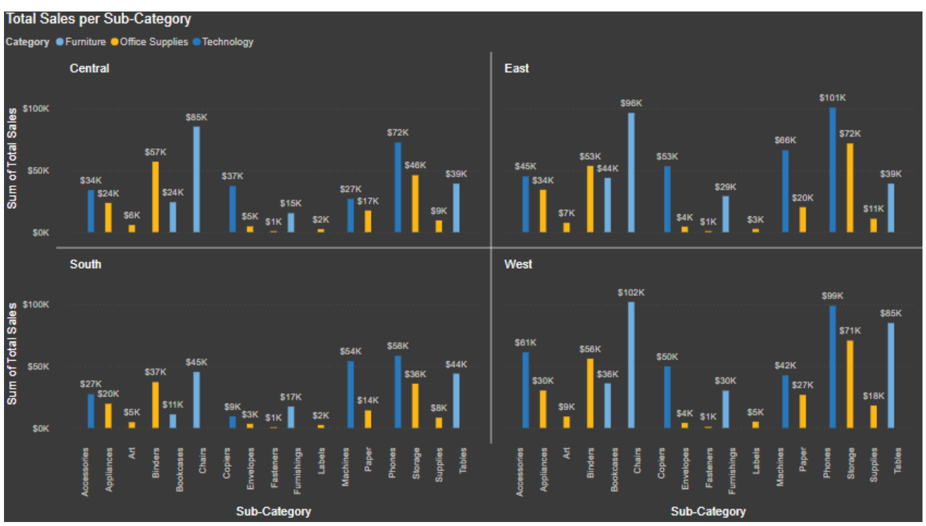

Figure 13. Total Sales by Category and Sub-Category per Region

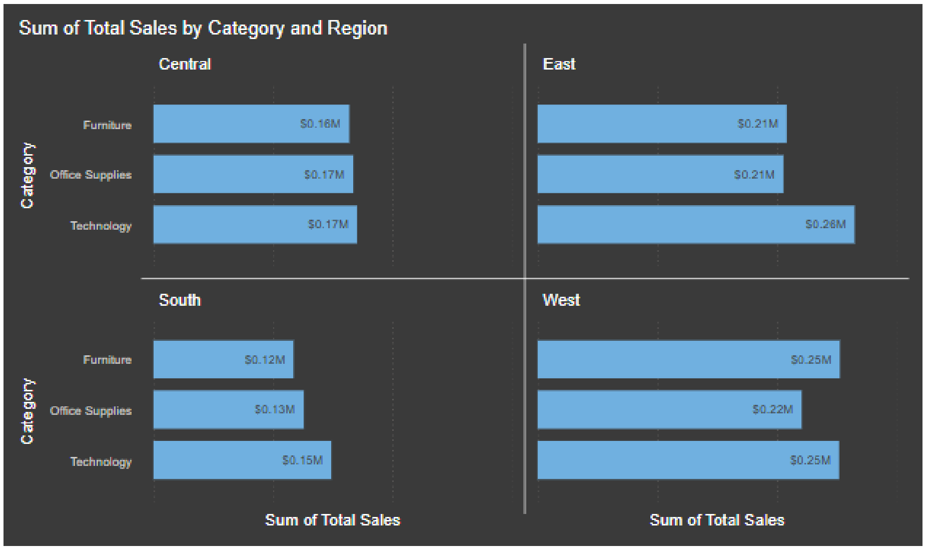

Figure 14. Total Sales by Category per Region

Region	Total Sales	Quantity
Central	$501,239.8908	8780
East	$678,781.24	10618
South	$391,721.905	6209
West	$725,457.8245	12266

Figure 15. Total Sales and Quantity per Region

In terms of product analysis by region, the West region has the highest quantity of products sold with 12,266 units, followed by East, Central, and finally, South Region with 10,618, 8780, and 6209, respectively. Equally important, Chairs and phones are the products that lead in all of them, with a small difference, chairs taking the lead in central and western areas, and phones in the South and East.

In the East region, Furniture stands out as the top-selling category, unlike the other three regions, where Technology leads in sales. This indicates strong performance for furniture in the East, suggesting that a deeper analysis of demographics, competition, and marketing strategies in the area could help further boost overall furniture sales.

Additionally, while the Central and South regions display similar sales patterns, the East region shows a unique trend, despite Technology being the leading category, Furniture ranks as the second-highest seller. Analyzing to understand the factors driving this behavior could provide valuable insights for balancing sales across all categories, ensuring a more evenly distributed revenue for the company. This way, the company will not depend heavily on one specific product category, but it will have different strong points to solidify its position on the market.

4) Shipping & Regional Dynamics

4.1) Sales and Profit by Region

An analysis of regional sales trends shows that the West Region generates the highest revenue, acquiring $ 725.46 K. Also, within this region, the state of California accounts for 63% of the revenue. And, more particularly, the cities contributing the most to state sales are Los Angeles, San Francisco, and San Diego. In contrast, the South Region represents the lowest revenues, with $391.72 K, which represents 17.5% of total Sales. Within this region, the state of South Carolina contributes the smallest share, accounting for just 2.17% of the total region's revenue. The cities with the lowest sales in the state are Summerville, North Charleston, and Rock Hill, with values of $406,94, $ 284,25, and $ 11,58, respectively.

Meanwhile, the company's current approach in the West Region appears to be highly effective and should continue. Given that the East Region’s sales are relatively close to those of the West, it may be beneficial to implement similar strategies there to strengthen its position as a key market. At the same time, exploring innovative ways to engage cities with the lowest sales.

This insight prompts a deeper evaluation of potential factors, such as store availability and target market alignment. If the company's primary customers are concentrated elsewhere, developing personalized marketing strategies based on the South Region's consumer demographics could help boost sales in that area.

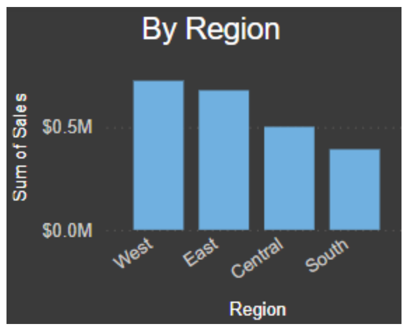

Figure 16. Proportion Sales by Region

Figure 17. West Region by States

In comparison with the Sales, the distribution of profit by regions follows a similar pattern, with the West Region representing 37.86% of the total Profit, followed by East with 31.96%, the South with 16.32%, and finally Central with 13.86%. In addition, considering all the regions, the most profitable city is New York with 67.08% of the total profit.

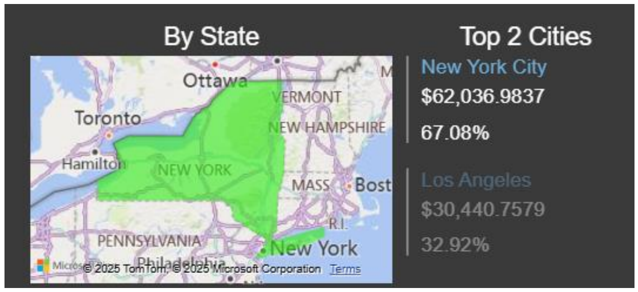

Figure 18. Profit New York City

Understanding the proportion of profit by states and cities allowed the company to make more informed decisions, improve strategies for cities with negative profit, and replicate successful strategies in those with the highest profitability.

4.2) Shipping Analysis

Regarding the shipping analysis, the mode that generates more revenue is Standard class, representing 59.1% of total Sales. This mode takes between 4 and 7 days from order placement to shipment. In terms of frequency, 40.25% of the standards are shipped within 4 days, meanwhile the remaining 59.75% take between 5 to 7 days. In contrast, the shipper mode that generates fewer Sales is Same Day, accounting for only 5.4% of the total Sales, and assuming Same Day refers to shipping the same day that the order is placed, the accuracy is about 95,58%.

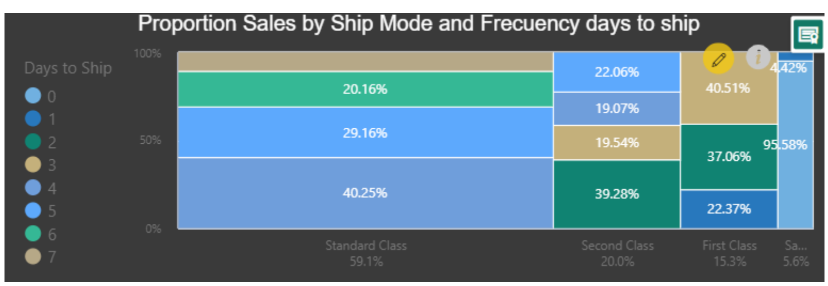

Figure 19. Marimekko Chart Sales by Ship Mode and Frequency of days to ship

Ship Mode	Max of Days to Ship	Min of Days to Ship
Standard Class	7	3
Second Class	5	1
Same Day	1	0
First Class	4	1

Figure 20. Max and Min days to ship per Ship Mode

Not all states currently offer the same shipping option. There is a specific area between the Central and West regions, including the states of Oregon, Idaho, Wyoming, South Dakota, and North Dakota, where Same Day, First Class, and Second-class shipping are not available. This gap suggests the potential loss of customers seeking faster delivery options. Establishing a regional distribution center in this zone could enhance service speed and minimize the gap between order placement and order shipment, and help capture unmet demand.

Figure 21. States with a lack of Ship Modes