University of Niagara Falls Canada

Master of Data Analytics

Advanced Data Visualization

Course: Advanced Data Visualization CPSC-600-5

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Superstore Sales Analysis Report

Introduction

The purpose of this report is to provide a strategic analysis of the Superstore dataset using Tableau. Identifying trends in sales, customer behaviour, and product performance is the goal of this endeavour. The creation of a dynamic data exploration experience was accomplished through the utilization of advanced Tableau technologies such as parameters, sets, calculated fields, and interactive dashboards. The purpose of this study is to unearth insights that can be put into action, which can improve customer segmentation, drive profitability, and provide direction for product planning.

1. Data Import & Exploration

The Superstore dataset was imported into Tableau for the purpose of conducting an analysis of numerous important business parameters, such as sales, profit, customer segmentation, and geographical performance. For the purpose of enriching the dataset and discovering relevant patterns, sophisticated exploration tools were utilized.

For the purpose of evaluating an organization's effectiveness and profitability, calculated fields such as Profit Ratio ([Profit]/[Sales]) were developed. Additionally, a parameter that allows for the dynamic exploration of high-value client segments was created. This parameter allows for the selection of the Top N customers based on sales.

In addition to this, a set was developed based on the Top N parameter in order to filter the bar chart and emphasize clients that demonstrate exceptional performance. This configuration made it easier to have a more in-depth insight of the dynamics of sales and the behaviour of customers across different geographies and segments.

2. Apply Complex Filters & Sorting

For the purpose of obtaining a more concentrated view of the data, top N filters, range filters, and dynamic region/segment filters were carried out. In order to assess order values across different types of customers, for instance, range filters were utilized, and custom sorting was utilized to emphasize the categories that performed the best.

With the use of parameters, users were able to select an area or client segment in an interactive manner, which enabled the dashboard to be tailored to the particular requirements of a certain firm. A number of important phenomena were brought to light

by this flexible filtering, including variances in customer profitability and a greater performance in the Western region.

3. Advanced Visualizations

1. Dual-Axis Line Chart – Monthly Sales and Profit Trends
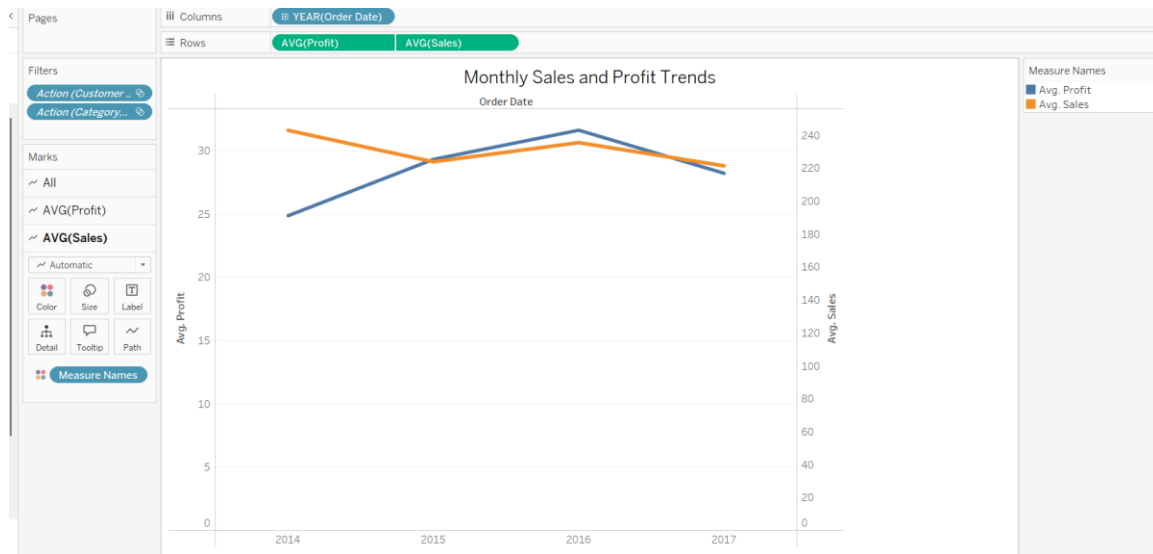
Goal: To look at how normal monthly sales and profits have changed over time.

The blue line shows the average earnings, and the orange line shows the average sales. In general, both sales and earnings went up from 2014 to 2016, with 2016 being the highest year. However, the profit line doesn't rise as quickly as sales, which shows that more sales don't always mean more profit. This could be because of deals or higher costs of doing business during months with a lot of sales, like the holidays.

2. Heat Map – Regional Sales Intensity by Product Category
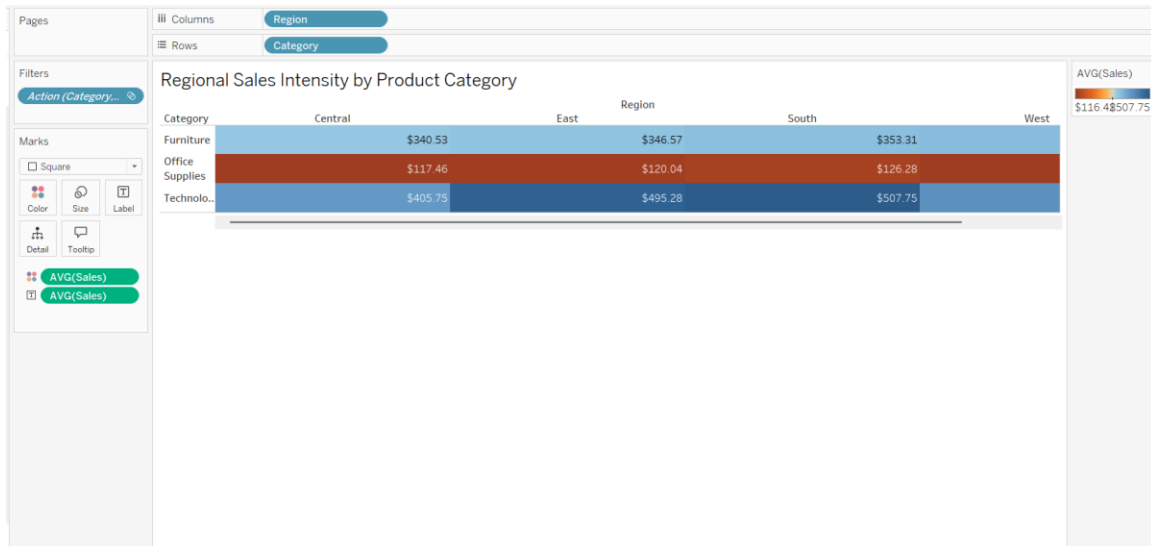
The goal is to use colour intensity to compare sales across product categories and locations.

Insights:
With average sales over $500, the West and South are the best places for technology. All over the world, furniture does about average (~$340–$357).

In every area, Office Supplies doesn't do well, with average sales below $130.

Regional plans should be made to fit the needs of each area. In general, the West is a strong area, but Office Supplies needs work all over.

3. Tree Map – Sales Contribution by Product Sub-Category
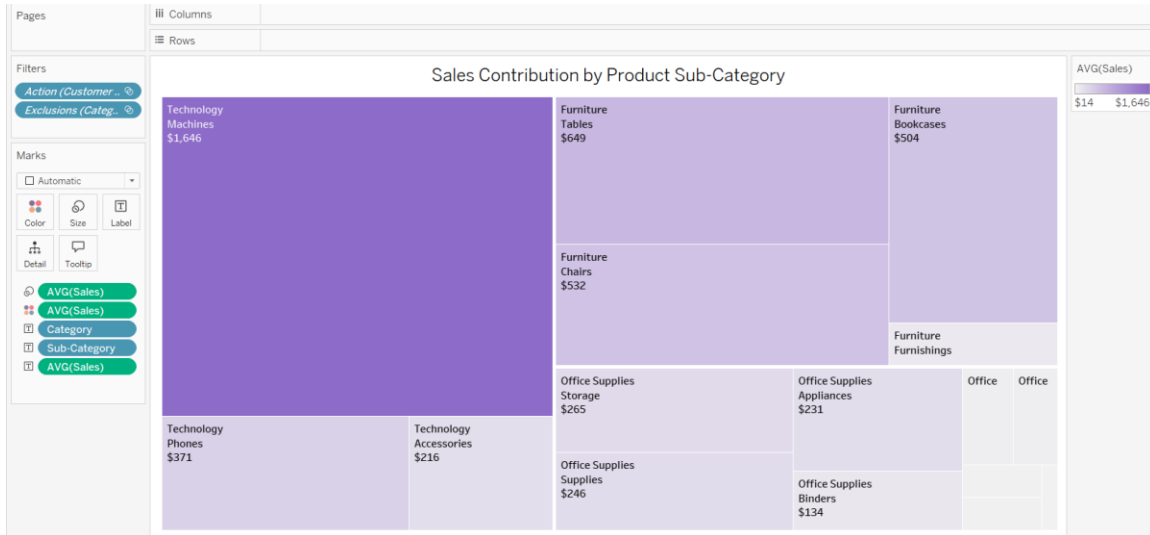
The tree map shows how much each product sub-category contributes to sales.The goal is to see how size and color affect the contribution of each sub-category to total sales.

Insights:

When it comes to technology, the main sub-categories are machines and phones. Furniture, like tables and chairs, also makes a big difference.

Binders, appliances, and storage are some of the office supplies that make modest to low contributions.

Focus on things that sell well, like machines and phones, and find the best margins for sub-categories that don't make much money, like binders.

4. Bar Chart – Top N Customers by Total Sales
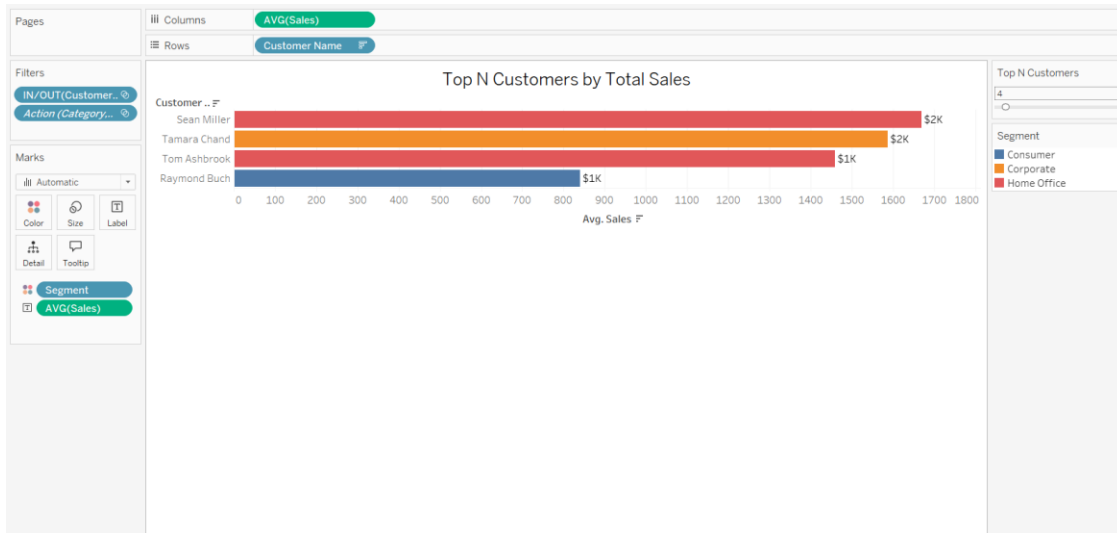
The goal is to find and compare the best customers based on how much they usually buy.
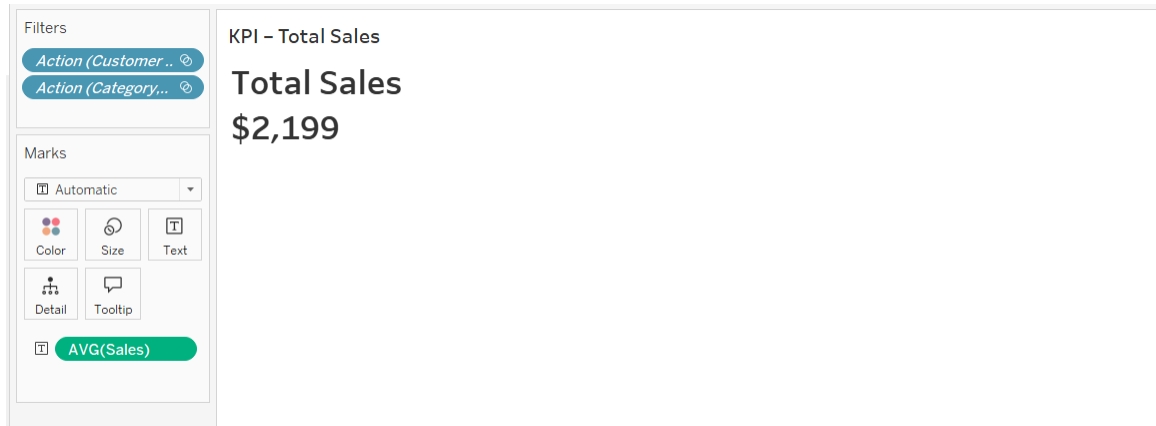
Thoughts:
Four people have bought the most: Sean Miller, Tamara Chand, Tom Ashbrook, and Raymond Buch.

A mix of Consumer, Corporate, and Home Office can be seen in the segment color code.

Even though there are fewer corporate buyers, the profit per sale is usually higher.

Targeting personalized service and reward programs at important corporate clients is the way to go.
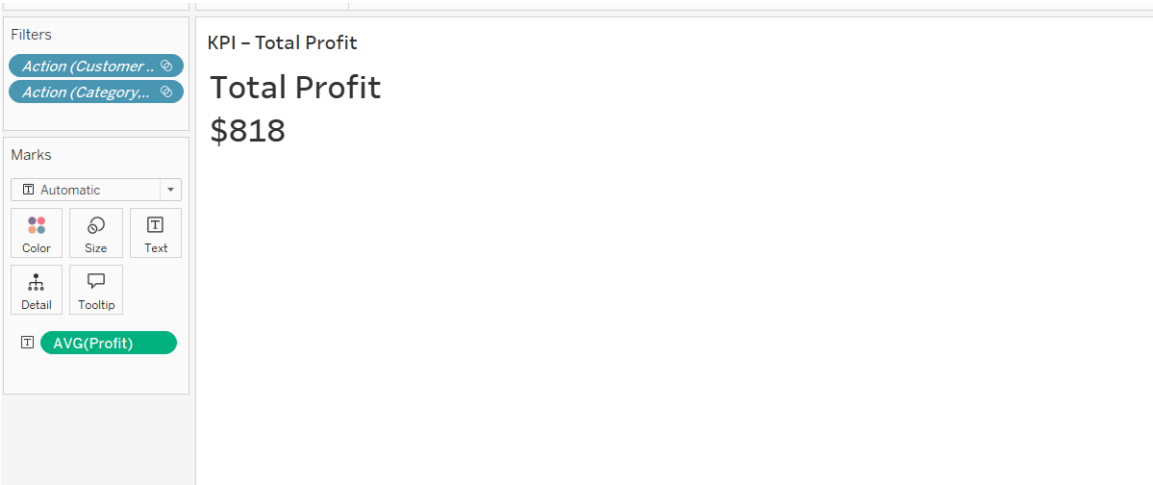
5.KPI – Total Sales

KPI – Total Sales

Total Sales
$2,199

Filters
Action (Customer ..
Action (Category,...

Marks

Automatic

Color   Size   Text

Detail   Tooltip

AVG(Sales)

There were a total of $2,199 in sales.

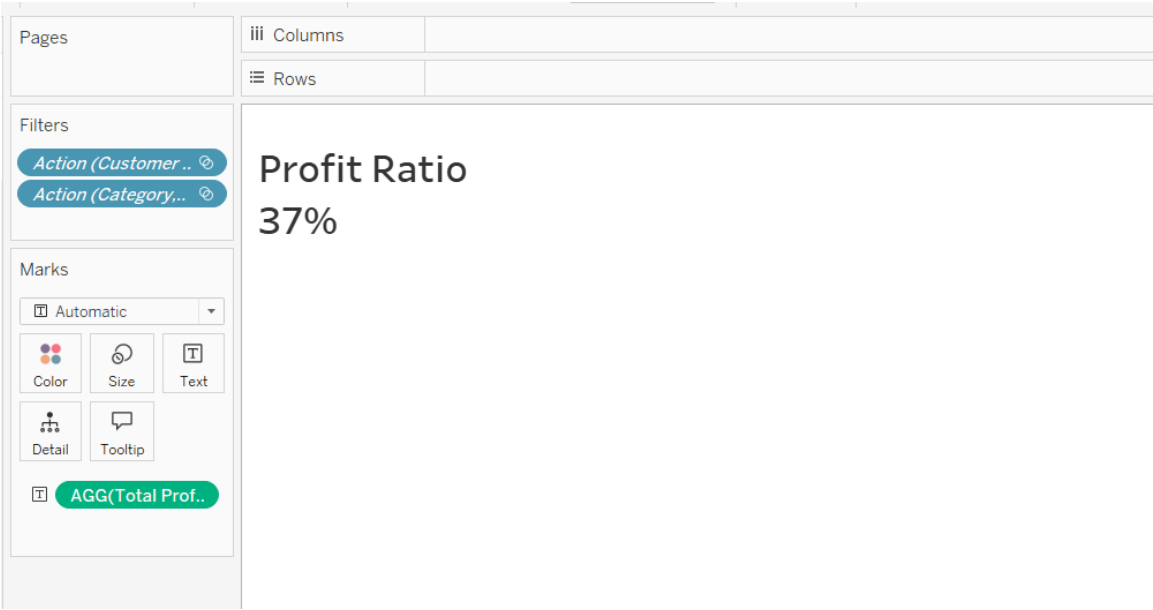Use: An executive-level dashboard can use this quick summary picture to keep an eye on performance.

6. KPI – Total Profit

The KPI for Total Profit shows that the average total profit is $818.

Insight: Shows that there is room for increasing profits compared to total sales.
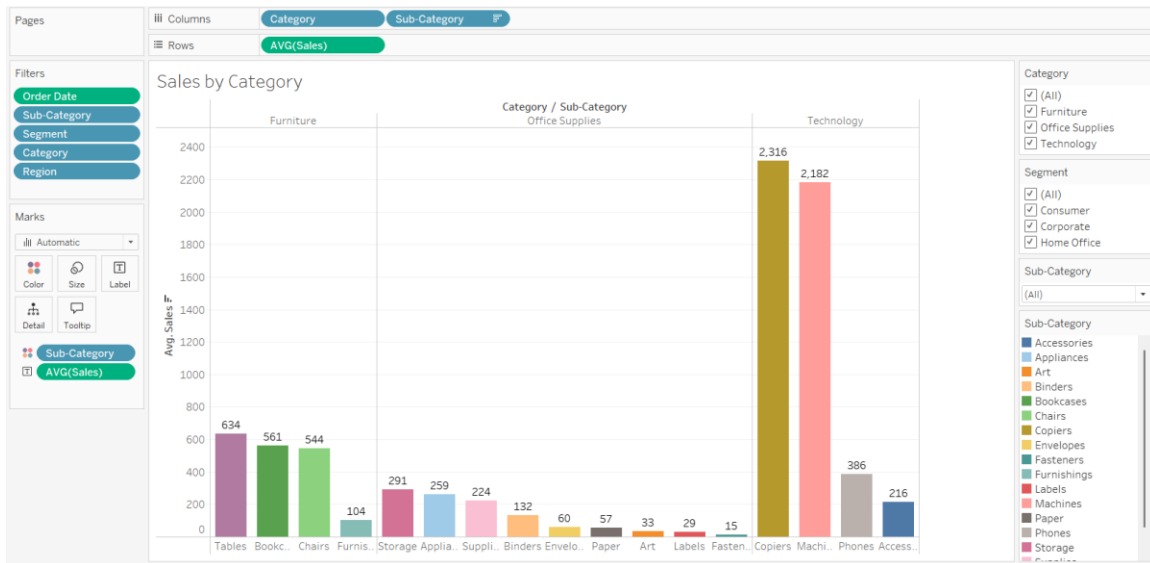
7. KPI – Profit Ratio

This shows a 37% profit share.

Use: It helps you figure out how effective sales tactics are overall. Different industries have different ideas of what a healthy profit share is, but 37% is a good number for retail—but it could be even better.

8. Bar Chart – Sales by Sub-Category

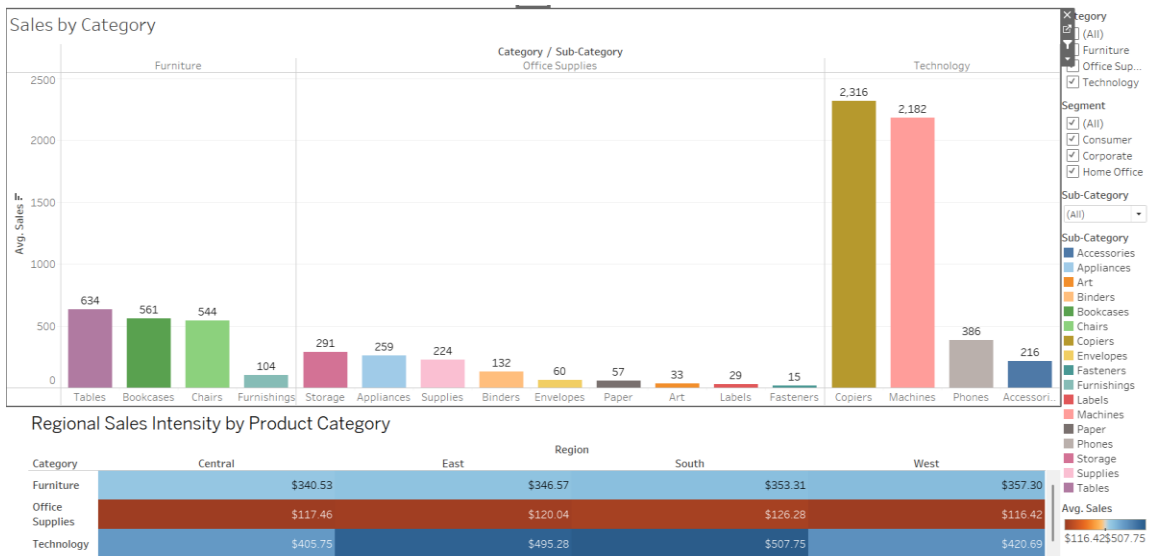The goal is to show in detail how well each sub-category of products works.
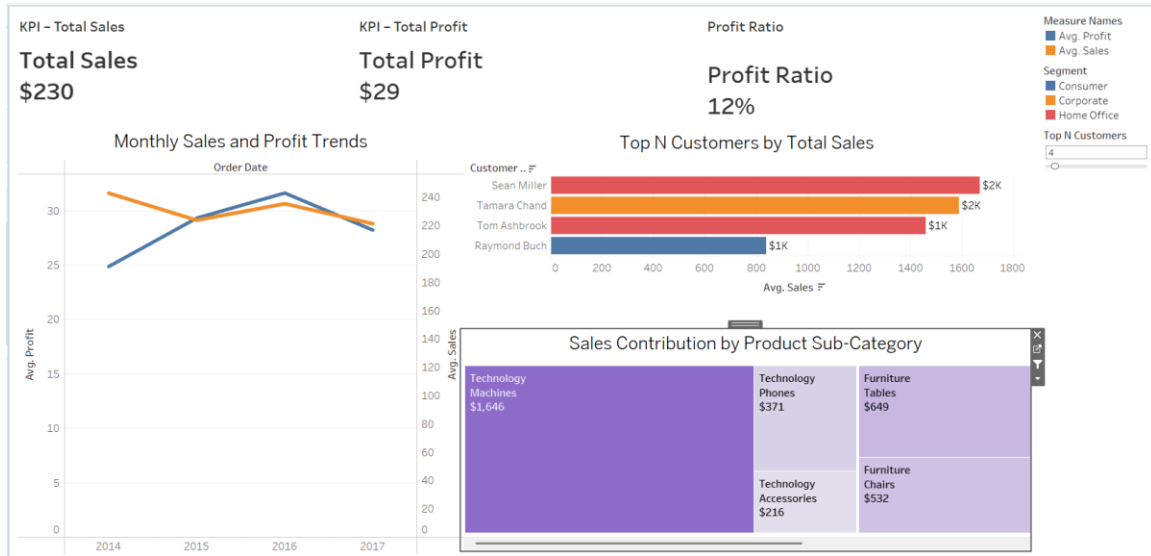
Thoughts:

Copiers, machines, and phones are some of the best workers.

Labels, Art, and Fasteners are all poor producers.

These findings should be used to decide how to use resources and what to keep in stock.

9. Dashboard – Combined Overview

Key Performance Indicators (KPIs), sales trends, user breakdown, and product contributions are all included.

Offers a full picture for those making decisions by putting together sales, customer behaviour, and profits in a single view.

4. Insight Generation

The study shows that Technology, especially Machines and Copiers, is the best-performing area. Overall, sales are highest in the West. Corporate clients make a lot more money for the company than Consumer customers do. Even though there are a lot of sales, the total profit margin is still low at 12%, which means that better pricing or cost-control strategies are needed. The South location and the Office Supplies category don't do as well as they should, which shows where marketing or advertising efforts should be focused. Profitability and growth can be improved by making it easier to get products that are in high demand, keeping good customers, and making things better for groups that aren't doing well. In the future, the focus should be on increasing profits and bringing successful methods to other areas.

5. Recommendations

Price strategies can help you make more money; focus on your best-selling tech items; work on weak areas like the South; get profitable business clients; and use data-driven insights to help you optimize your inventory for better performance.

6. Conclusion

This study of the Superstore dataset shows clear trends in how well sales are doing, how customers act, and how products contribute. Over time, sales have slowly increased, mostly in the Western region. The Technology category, especially Machines and Phones, has become one of the best performers. Profit margins are still low at just 12%, even though sales are high. This could mean that the business isn't running efficiently or is reducing too much. Office Supplies doesn't do as well in any area, and corporate customers always make more money per sale than Consumer customers. These insights show both what's good about the business plan and what could be done better.