

# Business Analytics: Data Visualization Assignment

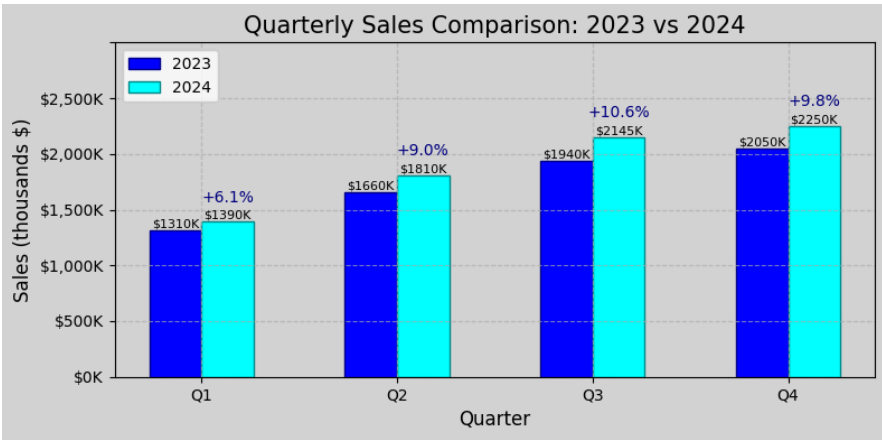
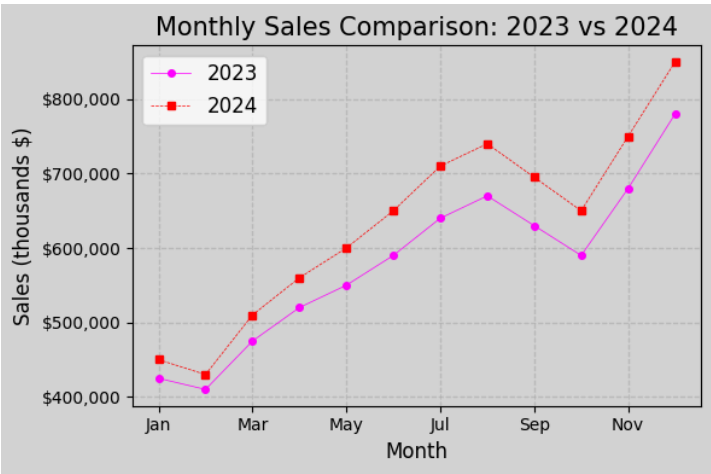
## Analysis Report

### Introduction

This report analyzes TechTrends’ business performance using 2023 and 2024 data, focusing on Sales Trends, Product Performance, Customer Behavior, and Market Position. Through targeted visualizations, we aim to identify growth opportunities and areas for improvement to help TechTrends formulate better strategies and achieve its organizational goals.

### Sales Trends Analysis

**Monthly Sales:** Observing the monthly sales of the years 2023 and 2024, we find that the sales in 2024 consistently remained higher than those of 2023. We observe that the sales tend to increase towards the end of the year indicating a higher demand, considering sales being over \$800,000 in December 2024 and over \$750,000 in the same month of the preceding year. Another noticeable point is the dip in sales in February and October, indicating a lower demand across the years,



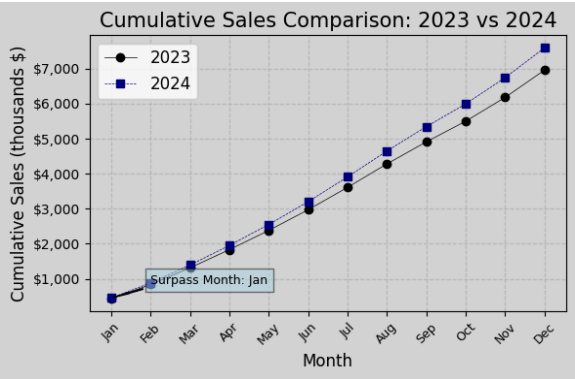
**Quarterly Sales:** As would be predicted after looking at the monthly sales, the quarterly sales in 2024 remained consistently higher than those of 2023. The most important observation is the percentage increase in Quarterly Sales for Q3, about 10.6% more, the highest among all quarters. This could potentially be a result

of a new launch or a promotion.

**Cumulative Sales:** We see a steady growth in the cumulative sales of both years. The sales of 2024 surpassed those of 2023 beginning in January, with the first months’ sales in 2024 higher than those in 2023. The gap keeps growing as we look forward in the year indicating a consistent increase in sales in 2024.

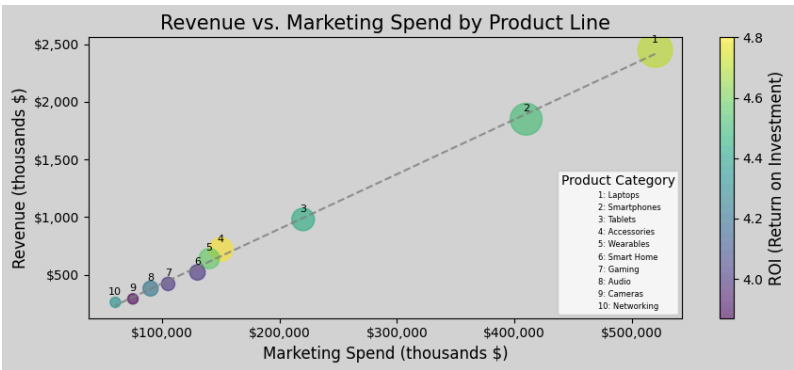
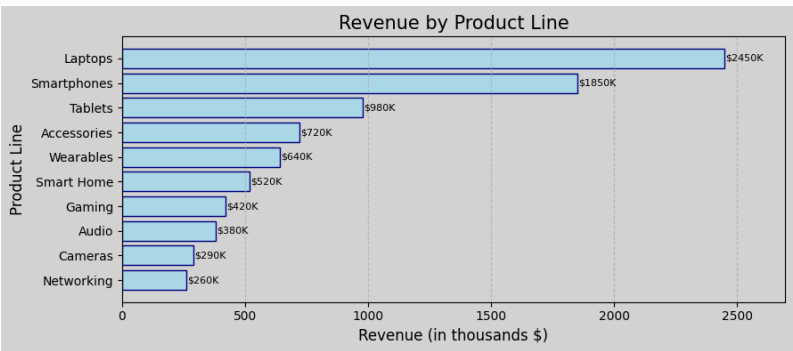
**Insight:** We see consistent growth in 2024 as compared to 2023, especially in the last two quarters of the year.

**Recommendation:** We suggest that the company investigates and finds reasons behind the boost in the sales for Q3 of 2024. Further, they may consider replicating the strategies (promotions, new launches, etc.) as well as beginning campaigning such that sales in 2025 start off strong.



Product Performance Analysis

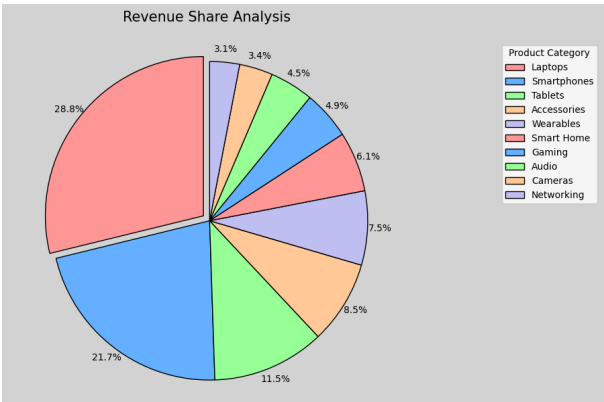
**Revenue by Product Line:** Based on the plot, we find that ‘Laptops’ is the highest revenue generating Product Category at \$2,450,000 with ‘Smartphones’ (\$1,850,000) and ‘Tablets’ (\$980,000) following closely behind. Note that networking is the lowest revenue-generating category with only \$260,000 in revenues.



**Marketing Spend vs. Revenue:** Looking at the scatter plot, we understand that in most cases, a higher marketing spend seems to be correlated with profit margins and revenues. We see that ‘Gaming’ has the highest ROI at more than 4.8% whereas ‘Smartphones’ have the lowest ROI at less than 4%,

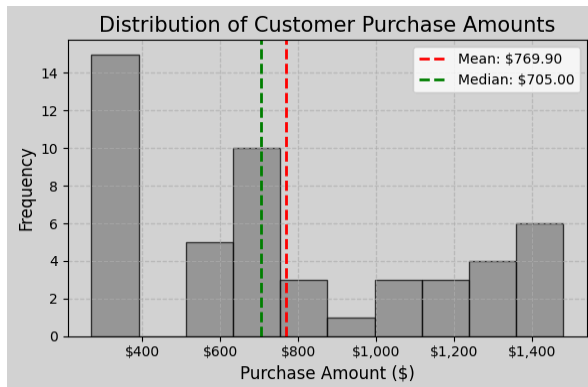
**Revenue Share:** Again, we see that ‘Laptops’ have the highest revenue share among all Product Categories, making upto 28.8% of the total revenue as compared to the lowest revenue share of 3.1% from the ‘Networking’ Product Category.

**Insights:** We understand the ‘Laptops’ are the ‘Hero Product’ of the company, making up most of the revenue share. This suggests that ‘Laptops’ have a very efficient performance in the market and ‘Networking’ seems to be less efficient.



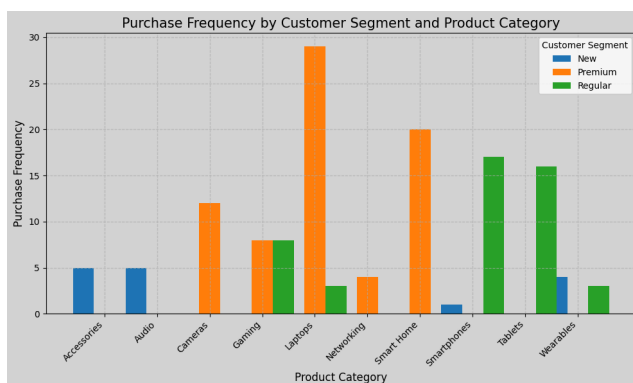
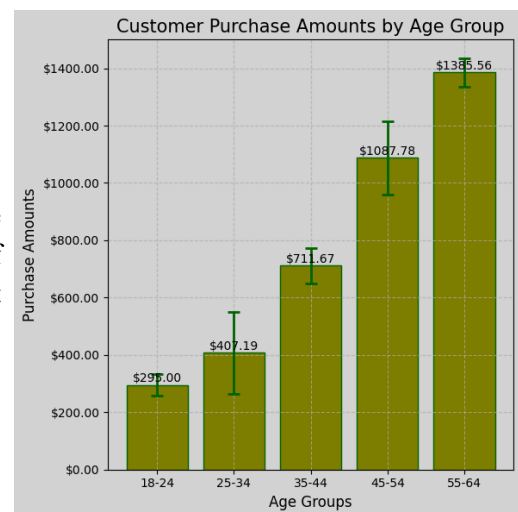
**Suggestions:** Consider allocating more marketing budget towards ‘laptops’ and less towards ‘networking’. Also, the company could think of investigating the failed performance of ‘Networking’ in the market.

## Customer Segmentation Analysis



**Purchase Amount Distribution:** We see that most customers make a purchase of less than \$400, while the average purchase amount is approximately \$770, and the median purchase amount is \$705. This shows that there are most customers making lower amounts of purchases.

**Purchase Amounts by Age Group:** The average purchase amounts of the customers seem to grow with the age groups of the customers, with the 55-64 age group spending about \$1385.56, while the 18-24 age group spends only about \$295 on average.



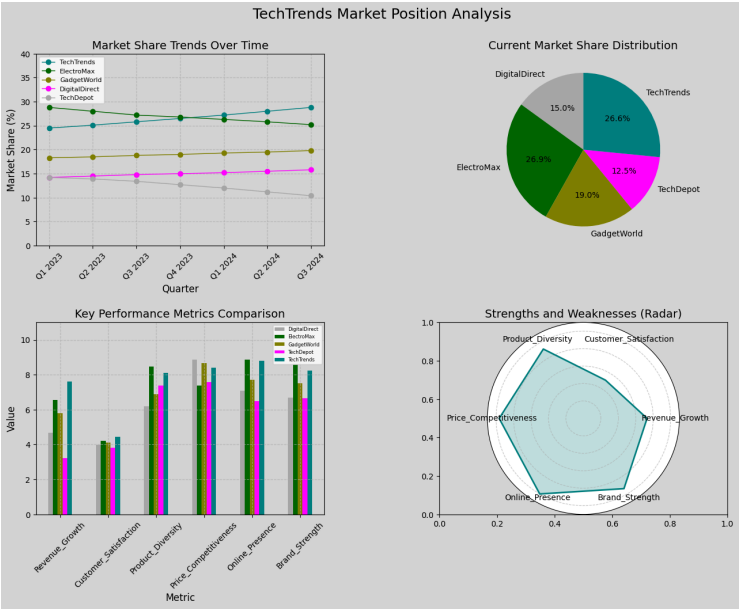
**Purchase Frequency:** We see that the ‘Premium’ customer segment purchases the most, especially laptops. On the other hand, they do not spend on accessories, audio, tablets, or wearables. New customers seem to use accessories and audio devices as their most purchased products.

**Insight:** We see that the 55-64 age group and Premium segment customers are the most valuable customers for the company. Younger and newer customers have lower contributions.

**Suggestions:** Start loyalty and incentive programs for older customers to retain them the most. Consider student discounts or budget-friendly deals for younger and newer customers.

# Market Position Dashboard

**Market Share Trends:** We see that the market share of TechTrends increased from about 24% in Q1 2023 to about 29% in Q4 2024. On the TechDepot lost its share with time and GadgetWorld remained stable.



**Market Share Distribution:** According to the pie chart, we interpret that TechTrends has a 26.6% share in the market, being the second highest, only 0.3% behind ElectroMax. TechDepot has the smallest share of 12.5%.

**Performance Metrics:** TechTrends has the strongest revenue growth, customer satisfaction, and online presence. It has the second highest brand strength and product diversity, behind ElectroMax. Finally, it is the third highest price competitiveness, behind DigitalDirect and GadgetWorld.

**Strengths and Weaknesses:** The radar chart reveals TechTrends is strongest in Brand Strength and Online Presence, with scores close to the outer edge. However, it struggles with Price Competitiveness and Product Diversity, where scores are significantly lower towards the center.

**Insights:** TechTrends' market share grew to 26.6%, but lags behind ElectroMax by 0.3%, excelling in Brand Strength and Online Presence while struggling with Price Competitiveness and Product Diversity.

**Suggestions:** Enhance pricing strategies and product diversity to overtake ElectroMax, and target TechDepot's declining customers using TechTrends' strong brand and online presence.

## Conclusion

This analysis of TechTrends' performance across 2023 and 2024 highlights significant growth and competitive strengths, alongside key areas for improvement. The company achieved consistent sales growth in 2024, particularly in Q3 and Q4, with a 10.6% quarterly increase, and its market share rose from 24% to 29%, positioning it just 0.3% behind ElectroMax at 26.6%. Laptops emerged as the top revenue driver at 28.8%, while the 55-64 age group and Premium customer segment proved to be the most valuable, contributing the highest purchase amounts and frequency. However, challenges remain in Price Competitiveness, Product Diversity, and the underperformance of the Networking category, which generates only 3.1% of revenue. By focusing on competitive pricing, expanding product offerings, and targeting TechDepot's declining customer base with its strong Brand Strength and Online Presence, TechTrends can close the gap with ElectroMax and solidify its market leadership in 2025.