



# International Journal of Innovative Research in Science Engineering and Technology (IJIRSET)

*(A Monthly, Peer Reviewed, Refereed, Scholarly Indexed, Open Access Journal)*



**Impact Factor: 8.699**

**Volume 15, Issue 3, March 2026**

# **Strategic Product Placement Analysis: Unveiling Sales Impact using Tableau Visualization**

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**ABSTRACT:** Product placement is an important factor affecting consumers' buying behavior. The current study is concerned with exploring the effects of product placement, pricing strategies, promotions, and customer demographics on sales performance through applying Tableau visualization tools.

The data used for analysis includes different attributes such as product category, position of the product, price, competitors' price, volume of sales, season, promotion, and foot traffic. Different types of visualizations have been created to understand the relationship between different variables.

An interactive visualization is created to provide a comprehensive interface for analysis. The results showed significant effects of product placement, pricing strategies, and promotions on sales performance. This study aims to show how data visualization can be used to support decision-making in retail industries.

**KEYWORDS:** Product Placement, Tableau, Data Visualization, Sales Analysis, Retail Analytics, Consumer Behavior

## **I. INTRODUCTION**

In the current competitive environment of the retail industry, the positioning of the product is of critical importance in affecting the purchase decisions of the customers.

Traditional approaches in the analysis of the positioning of the products are normally based on assumptions rather than actual facts. With the evolution of the concept of data analytics, organizations can now use tools such as Tableau to analyze the large amounts of data available and come up with meaningful insights. This project is designed to analyze the effect of the positioning of the products, the prices of the products, and the demographics of the customers on the sales performance of the organizations. Through the use of the concept of data visualization, the study is able to come up with meaningful insights that assist the organizations in improving their business performance.

With the increasing amount of retail data available in the industry, there is a great opportunity for organizations to adopt a data-driven approach in the business environment. Visualization tools are of critical importance in the understanding of complex data.

## **II. LITERATURE SURVEY**

Several studies have also focused on the link between product placement and consumer behavior. In a study by Kotler, product positioning was identified as a major factor in decision-making, along with the layout of the store. Sorensen's study focused on the importance of placing products at eye level, which results in increased attention and higher sales.

In a study by Grewal et al., pricing strategies were identified as an integral factor in improving the results of a retail store, along with promotional strategies. It was also identified that product placement, along with pricing, can lead to better results.

In recent times, the importance of data visualization in retail analytics is being emphasized in various studies. It is identified that data visualization tools can detect hidden patterns in data, which are difficult to identify using other tools. In this research, an attempt is made to build upon existing studies by incorporating Tableau dashboards.

### III. METHODOLOGY

The methodology for this project is as follows:

For this project, the methodology is as follows: the product placement data is analyzed by using a tool called Tableau.

Firstly, the data is collected and then preprocessed by handling missing values and checking data types for the variables in the dataset, which include product category, product position, price, competitor price, sales volume, season, promotion, foot traffic, and customer demographics.

After preprocessing, a tool called Tableau is used for creating different kinds of visualizations, such as bar charts, scatter plots, and heatmaps, which help in understanding the relationships between variables. Finally, an interactive dashboard is created, which brings together all the visualizations created in the previous step into a single interface, which helps in taking decisions by using the data

### IV. SYSTEM ARCHITECTURE

The system architecture will include various stages starting from data collection to the final stage of data visualization and analysis. Firstly, the data will be collected and stored in a structured format. Then the data will be cleaned and processed to correct any inconsistencies and missing data. After data cleaning, the data will be imported into the Tableau tool.

Multiple visualizations will be created to analyze the data. Then the visualizations will be combined to form a dashboard. Finally, the dashboard will be integrated into a web application using the Flask tool.

#### Flow:

Dataset → Data Cleaning → Tableau → Visualizations → Dashboard → Web Integration

### V. IMPLEMENTATION

The implementation phase includes data preparation, data visualization, and creating dashboards.

#### A. Data Preparation

The data was imported into Tableau, and it was analyzed for missing data and inconsistencies. Data cleaning was done to ensure accuracy.

#### B. Visualization Techniques

Various techniques were used to analyze the data:

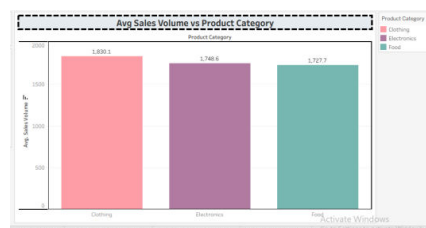


Fig. 1: Average Sales Volume vs Product Category

This chart shows the comparison of sales across different product categories. It helps identify which category performs better in terms of sales volume.

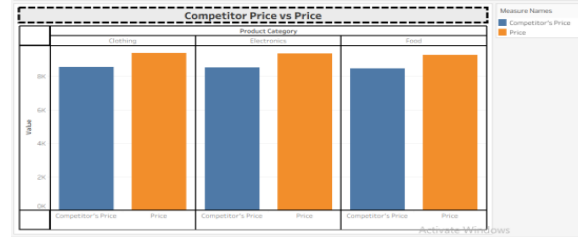


Fig. 2: Product Price vs. Competitor Price

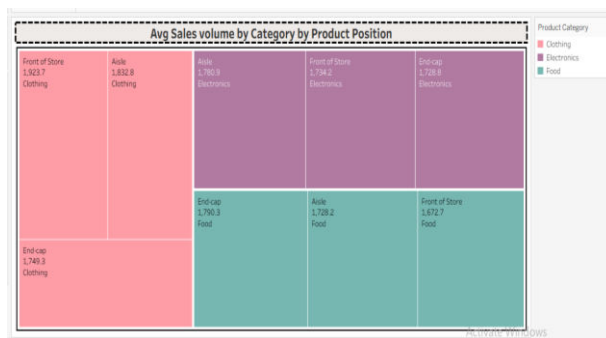


Fig 3: Avg Sales a volume by Category by Product Position

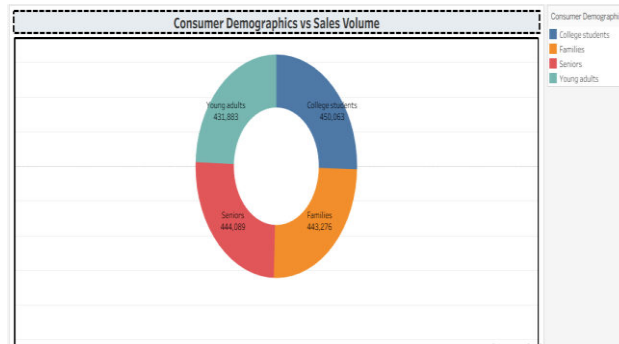


Fig 4: Consumer Demographics vs Sales Volume

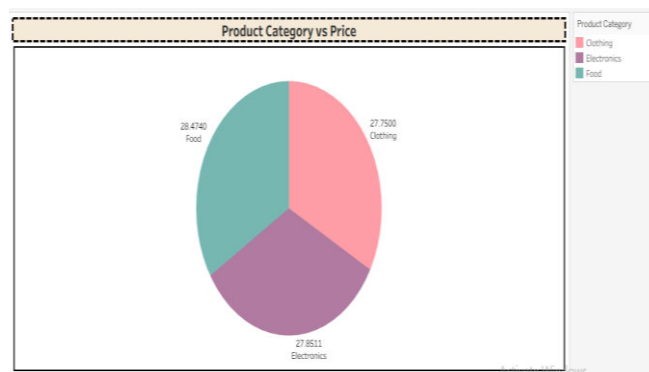


Fig 5: Product Category vs. Price

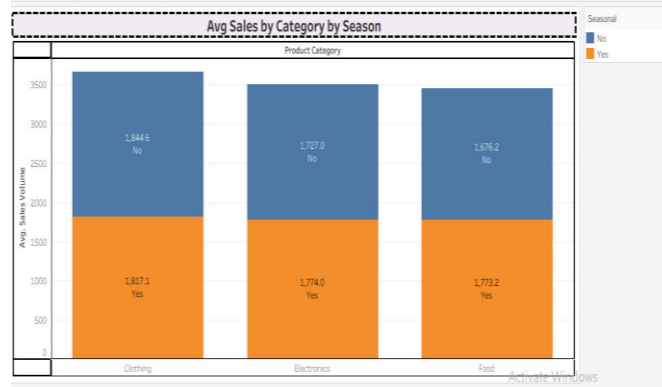


Fig 6: Avg Sales by Category by Season

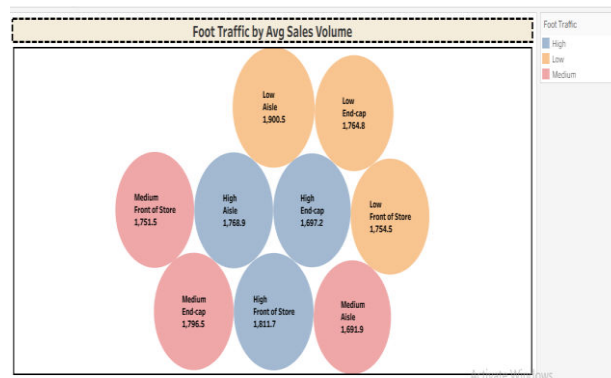


Fig 7: Foot Traffic by Avg Sales Volume

This visualization shows the relationship between product price and competitor price. It helps in understanding pricing competitiveness in the market.

- To analyze sales based on product categories, bar charts were used.
- To analyze price in relation to competitors' prices, scatter plots were used.
- To analyze product placement, stacked bar charts were used.
- To analyze customer demographics, heatmaps were used.
- To analyze seasonal trends, line charts were used.
- To analyze foot traffic in relation to sales, bubble charts were used.

C. Dashboard Design

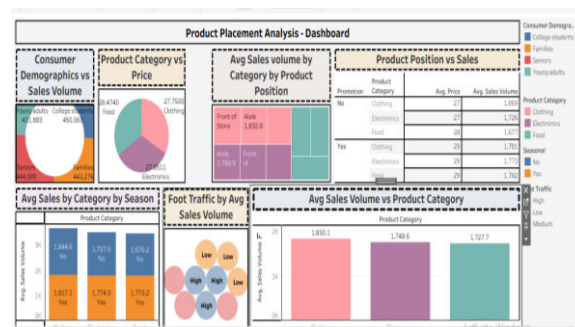


Fig: Product placement Analysis Dashboard

The dashboard integrates multiple visualizations into a single interactive interface. It allows users to apply filters and analyze product performance based on category, season, and promotion.

The interactive dashboard was developed by combining all the visualizations. The filters were added for product categories, seasons, and promotions.

The dashboard was developed to be user-friendly, interactive, and easy to navigate, ensuring that users can easily explore the data.

**D. Web Integration**

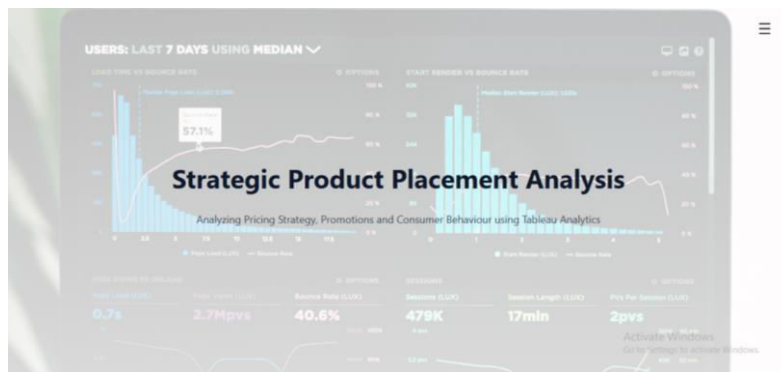


Fig: web integration of Home page using Flask

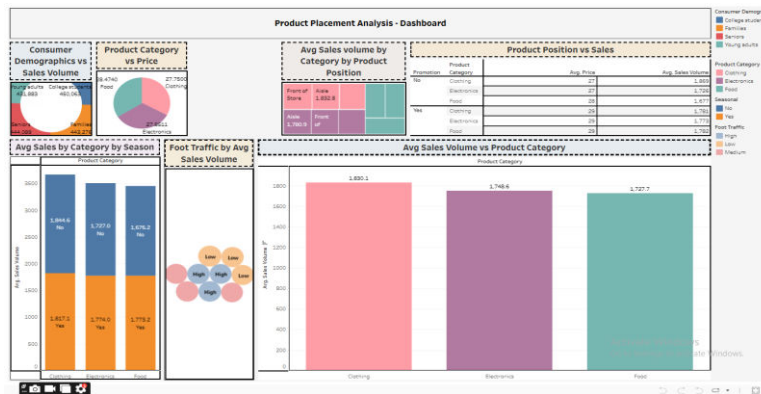


Fig: web integration of Dashboard Using Flask

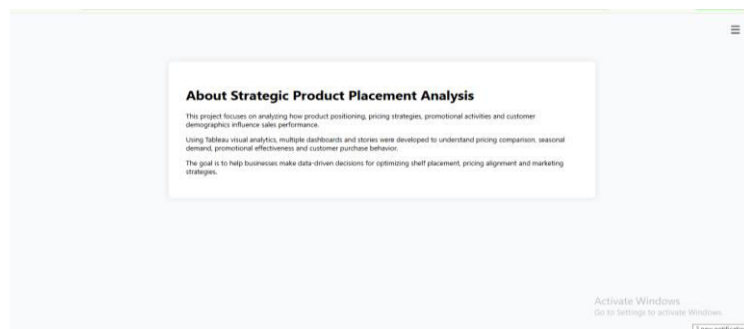


Fig: Web integration of about page using flask

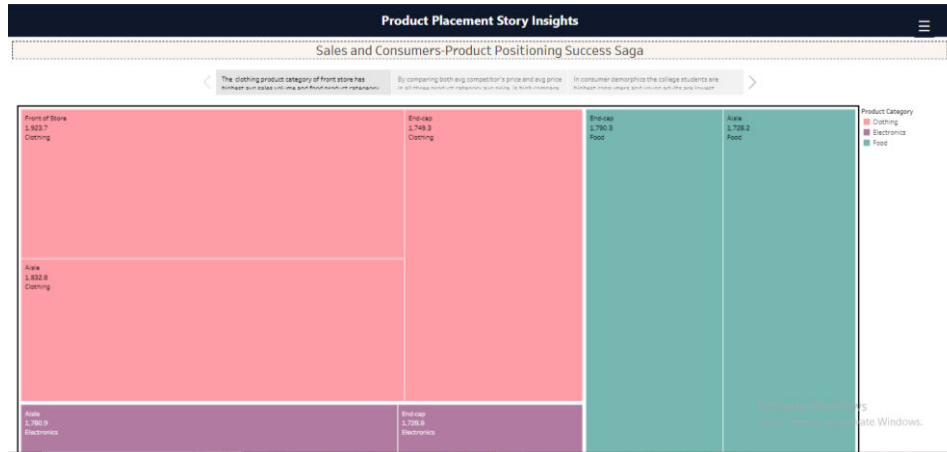


Fig: web integration of story page using flask

## VI. RESULTS AND DISCUSSION

The following were some of the notable findings from the dataset. The products placed on the eye levels resulted in high sales. The competitive pricing strategy was found to have a significant impact on the sales.

The promotional activities resulted in high sales volume, especially during peak season. In addition, high foot traffic resulted in high sales. The demographics of the customers were also found to have a significant impact on the sales.

## VII. ADVANTAGES OF THE SYSTEM

- └ Provides data-driven insights for decision-making
- └ Improves product placement strategies
- └ Enhances customer engagement
- └ Identifies sales trends effectively
- └ User-friendly and interactive dashboard

## VIII. CONCLUSION

This research has shown the potential of data visualization techniques in the analysis of product placement strategies, as well as the potential of these techniques in the analysis of the sales performance of products.

The use of the data visualization tool, Tableau, has made it possible to analyze the data effectively, thereby generating insights.

## IX. FUTURE SCOPE

- └ Future improvements may include:
- └ Integration with real-time retail data
- └ Use of predictive analytics for forecasting
- └ Implementation of machine learning models
- └ Expansion to large-scale retail datasets

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