Kumar Boste

https://github.com/KumarBoste/Retail_Sector_BusinessIntelligence_Project

Project Abstract

The Retail Sector Business Intelligence Model is a Tableau-based analytics project developed to provide end-to-end visibility into sales performance, customer behavior, and supply chain operations within the retail industry. The project consolidates transactional data into interactive dashboards including Executive Overview, Sales Analytics, Supply Chain Dashboard, and Customer Insights. These dashboards leverage KPI indicators, geographic analysis, product-level performance, and operational metrics to uncover business trends and inefficiencies. The insights generated from this model support data-driven decision-making by identifying revenue drivers, high-value customer segments, supply chain bottlenecks, and growth opportunities, ultimately helping improve operational efficiency, profitability, and strategic planning.

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1. Objective of the Project

The primary objective of this project is to design an end-to-end Business Intelligence (BI) solution for the retail sector that enables management to:

- Monitor sales, profit, and target achievement
- Analyze customer segments and geographic performance
- Evaluate supply chain efficiency and delivery performance
- Identify top-performing products, platforms, and markets
- Support data-driven strategic decision-making

The project leverages interactive Tableau dashboards to convert raw transactional data into actionable business insights.

2. Problem Statement

Retail businesses often face challenges such as:

- Lack of centralized visibility across sales, customers, and supply chain
- Difficulty tracking profitability by category, region, and platform
- Inefficient delivery timelines and high shipping costs
- Limited understanding of customer segments and buying behavior
- Poor alignment between sales performance and business targets

This project addresses these issues by building a multi-dashboard BI model that provides a 360-degree view of retail performance.

3. Business Questions Based on Visualized Insights

Executive-Level Questions :

1. What is the total sales and profit performance?
2. Are we achieving our sales targets?
3. How efficient is our average delivery time?

Sales & Product Questions :

4. Which product categories generate the highest sales?
5. Who are the top 5 most profitable products?
6. Which sales platforms contribute most to revenue?

Customer & Market Questions :

7. Which customer segment drives maximum sales?
8. How does sales vary across regions and countries?
9. Which markets have growth potential?

Supply Chain Questions :

10. Which warehouses are most efficient?
11. Where do we face delivery delays?
12. How does shipping cost relate to delivery time?

4. Statistical Analysis

The project applies the following analytical techniques:

Descriptive Statistics

- Total Sales, Profit, Quantity Shipped
- Average Delivery Days
- Percentage Target Achievement

Comparative Analysis

- Sales by Year
- Sales by Country and Market
- Segment-wise Revenue Comparison

Distribution & Trend Analysis

- Product category contribution using treemaps
- Year-over-year sales stability
- Platform-wise revenue distribution

Operational Metrics

- Delivered vs In-Transit vs Delayed shipments
- Warehouse shipment volumes
- Shipping cost vs delivery duration relationship

These analyses help identify patterns, outliers, and inefficiencies.

5. Data Visualization and Key Insights

Dashboard 1: Executive Overview

Visuals Used:

- KPI Cards
- Map Chart
- Bar Chart

Insights:

- Total sales reached 906K USD with profit of 295M
- Target achievement is only 41%, indicating underperformance
- India dominates sales, contributing the majority share
- Sales remain relatively stable across years, with no strong growth trend

Dashboard 2: Sales Analytics

Visuals Used:

- Treemap
- Bar Chart
- Pie Chart

Insights:

- Mouse and Keyboard are the highest revenue categories
- Gaming Wireless products generate the highest profit

- Retail Store and Corporate Portal are top-performing platforms
- Monitor category shows lowest contribution, indicating low demand

Dashboard 3: Supply Chain Dashboard

Visuals Used:

- Bar Chart
- Table
- Scatter Plot

Insights:

- Delhi North warehouse ships the highest quantity
- Average delivery time is 6 days
- Delayed shipments are consistent across regions
- Higher delivery days correlate with increased shipping cost
- Certain markets show cost inefficiency

Dashboard 4: Customer Insights

Visuals Used:

- Bar Chart
- Map
- Heatmap

Insights:

- Educational and Corporate segments generate the highest revenue
- E-commerce and Retail Chains underperform
- Urban markets like Bangalore, Delhi, Mumbai show high category demand
- Some regions show low product diversity, indicating expansion opportunities

6. Business Recommendations (Best Solutions)

1. Improve Target Achievement

- Reassess sales targets region-wise
- Focus marketing on high-performing segments (Educational & Corporate)
- Introduce performance-based incentives for low-performing regions

2. Optimize Product Portfolio

- Increase inventory for high-demand categories (Mouse, Keyboard)
- Redesign or bundle low-performing products (Monitors)
- Promote top profitable products across all platforms

3. Strengthen Supply Chain Efficiency

- Investigate root causes of consistent delivery delays
- Optimize routes for regions with high shipping cost
- Implement SLA-based performance tracking for warehouses

4. Customer Segmentation Strategy

- Launch targeted campaigns for Educational & Corporate clients
- Improve offerings for E-commerce customers to increase penetration
- Use regional demand patterns for localized promotions

5. Platform Optimization

- Strengthen Retail Store and Corporate Portal presence
- Improve digital experience on Amazon & Flipkart to boost conversions

7. Conclusion

The Retail Sector Business Intelligence Model successfully transforms complex retail data into meaningful insights using Tableau dashboards.

The project enables stakeholders to:

- Monitor business performance in real time
- Identify revenue drivers and operational bottlenecks
- Optimize supply chain and customer strategies
- Make informed, data-driven decisions

Overall, this BI solution demonstrates how analytics and visualization can directly support business growth, efficiency, and profitability in the retail sector.