E-Commerce Asset
Dashboard Expansion

E-Commerce in India

E-commerce in India has experienced a transformative journey over the past decade, evolving from a nascent industry to a cornerstone of the country's retail and services landscape. This growth has been propelled by a confluence of factors including the widespread adoption of smartphones, affordable internet access, and an increasing digital-savvy population. The proliferation of mobile devices, in particular, has revolutionized how Indians shop, communicate, and conduct business online. The COVID-19 pandemic further accelerated this shift, with consumers increasingly turning to online platforms for everything from groceries and electronics to education and healthcare services. As a result, e-commerce has become an integral part of the Indian economy, offering convenience, variety, and competitive pricing to consumers across urban and rural areas.

Moreover, the Indian government's proactive measures to promote digital literacy and infrastructure have significantly bolstered the e-commerce sector. Initiatives such as Digital India and Make in India have not only enhanced internet connectivity but also encouraged local entrepreneurship and innovation. The burgeoning middle class, characterized by rising disposable incomes and aspirational spending, has emerged as a key driver of e-commerce growth. This demographic is more willing to explore online shopping, influenced by factors like attractive deals, easy returns, and a plethora of product choices. Consequently, India's e-commerce market, which was valued at approximately USD 84 billion in 2021, is projected to soar to USD 200 billion by 2026, underscoring its vast potential and critical role in shaping the future of retail in the country.

Power BI Dashboards

5 dashboards are created, including various related KPIs, along with a Driver Tree with 'Operating Profit' as its base metric. The dashboards are for 1 year (Year 2024), except for the Marketing Dashboard, which has data for the first 6 months of 2024.

DAX columns and measures, along with conditional formatting, are used in several places to obtain the desired results.

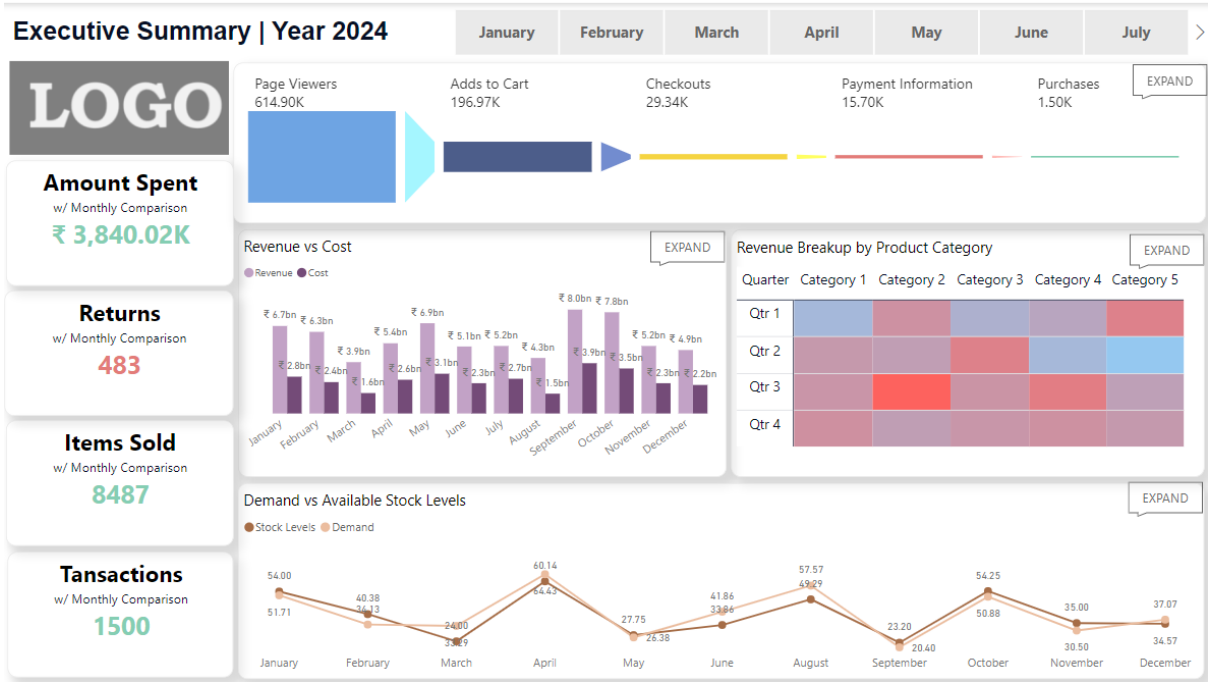
Dashboard along with visualisations' metrics

Dashboard (KPIs)	Filters	Metrics	Visualisation Type	Expands to/Tooltips
Executive Summary	Months	Total amount spent by the customers (w/ monthly comparison)	KPI Card	-
		Returns made (w/ monthly comparison)	KPI Card	-
		Total items sold (w/ monthly comparison)	KPI Card	-
		Transactions (w/ monthly comparison)	KPI Card	-
		User hierarchy	Dynamic Funnel	Customer Dashboard
		Revenue vs cost	Clustered Column Chart	Sales Dashboard
		Revenue breakup by product category	Heatmap	Marketing Dashboard
		Demand vs available stocks (in units)	Line Chart	Inventory Dashboard
Sales Dashboard	Quarters/ Category of Product	EBITDA	Score Card	-
		Net sales (w/ quarterly comparison)	KPI Card	-
		Gross sales (w/ quarterly comparison)	KPI Card	-
		Net profit margin	Gauge	-
		Average order value (AOV)	Gauge	-
		Top 10 selling products	Treemap	-
		Revenue vs cost	Clustered Column Chart	-
		EBITDA margin	Shaded Line Chart	-
		Revenue by states	Map	-
		Revenue by sales channels	Donut Chart	Basket Size
Marketing Dashboard	Months/ Category of Products/ Marketing	Click-through rate (CTR)	Score Card	-
		Return on advertisement spend (ROAS)	Score Card	-
		Conversion rate	Score Card	-
		Revenue from marketing campaigns	Score Card	-

	Campaigns Deployed	Cost per click (CPC)	Score Card	-
		Customers by states	Map	-
		Revenue distribution	Stacked Bar Chart	-
		ROAS by campaign channels	Treemap	-
		Revenue by demographics	Donut Chart	-
		Traffic vs clicks	Line and Column Chart	-
Inventory Dashboard	Quarters	Increase in the number of warehouses	Dynamic Button	(modifiable)
		Employee headcount change	Dynamic Button	(modifiable)
		Estimated daily customer change	Dynamic Button	(modifiable)
		Number of warehouses	Score Card	(modified)
		Daily customer per store	Score Card	(modified)
		Employee count per store	Score Card	(modified)
		Revenue per delivery	Score Card	(forecasted)
		Forecasted revenue vs cost	Clustered Column Chart	(forecasted)
		Demand vs available stocks (in units)	Line Chart	-
		Order fulfilment rate	Gauge	-
		Return rate	Gauge	-
		Warehouses by states	Map	-
Customer Satisfaction and Behaviour Analysis	Quarters	Overall rating (out of 5)	Score Card	-
		Satisfaction score (out of 7)	Score Card	-
		Customers by states	Map	-
		Membership type by total spend	Treemap	-
		Net promoter score (NPS)	Tachometer	-
		Promoters/passive/detractors	Score Cards	-
		Total spend by income category	Shaded Line Chart	Demographic Distribution
		Customers by purchase frequency	Clustered Column Chart	-
		Customer sentiment analysis	Donut Chart	-

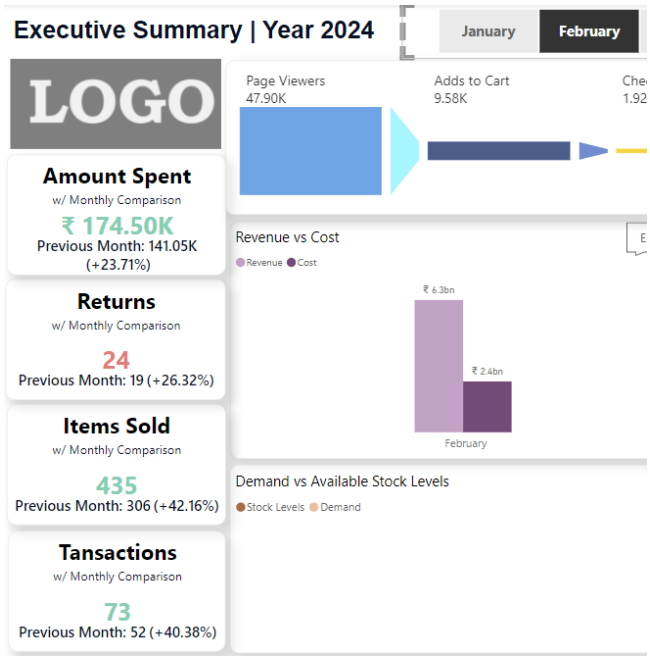
Dashboard Expansion

Executive Summary

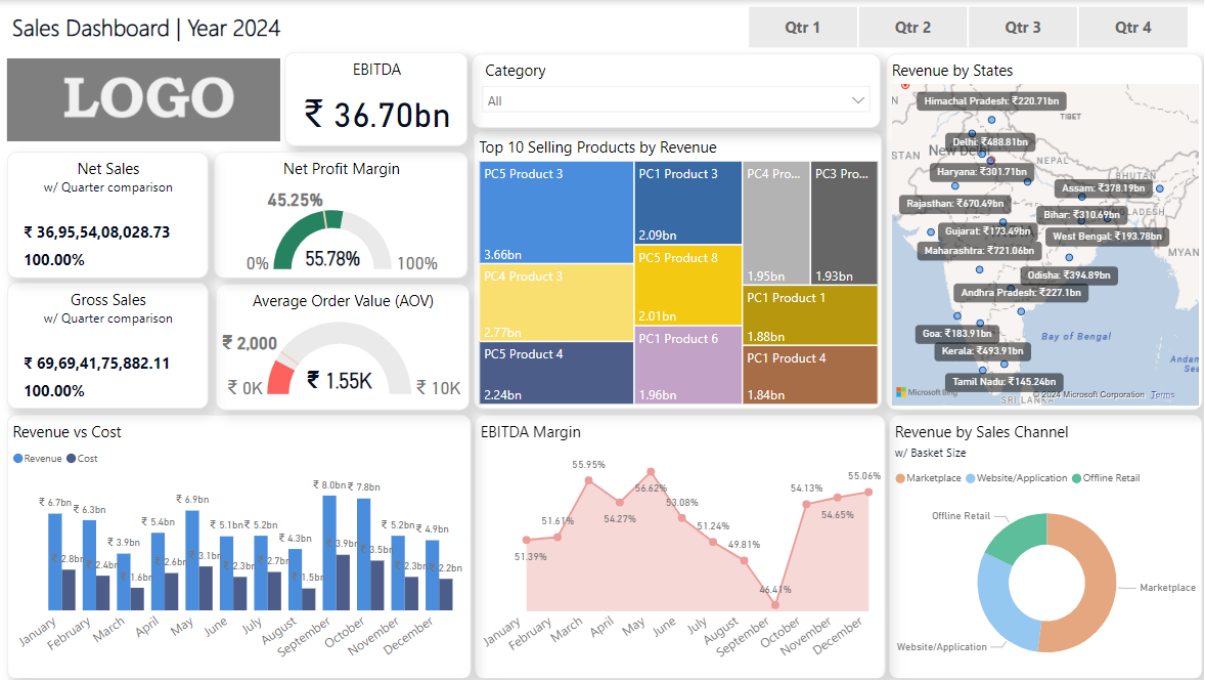


Each visualisation expands to other individual dashboards, as mentioned below.

Also, the KPI Cards show data and comparison of the previous month, concerning the one selected.



Sales Dashboard



Key Performance Indicators

1. **EBITDA**
   EBITDA represents the earnings before interest, taxes, depreciation, and amortization. It is a key indicator of the firm's operating performance and profitability, excluding the effects of financial and non-cash accounting items. For an E-Commerce firm, it shows the core operational efficiency.

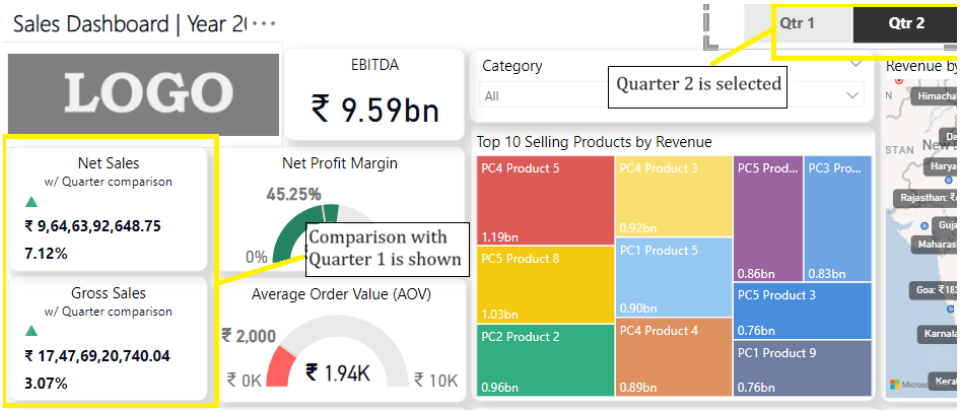
   → **Visualisation Type:** Score Card
   A scorecard is designed to highlight a single, critical number prominently. EBITDA is a crucial financial metric that stakeholders need to access quickly and easily, making the scorecard the optimal choice.

2. **Net Sales (with quarterly comparison)**
   Net sales reflect the total revenue from sales after returns, allowances, and discounts. It shows the actual revenue generated from selling goods. Here, it's vital for assessing the effectiveness of sales strategies over time.

   → **Visualisation Type:** KPI Card
   A KPI card provides a snapshot of the current value and its change over time or against a target. This format allows for quick comparison of net sales across quarters, facilitating trend analysis and performance evaluation.

3. **Gross Sales (with quarterly comparison)**
   Gross sales are the total sales revenue before any deductions. It provides insight into the total volume of sales activities. For an E-Commerce firm, it helps in understanding overall market demand and sales growth.

   → **Visualisation Type:** KPI Card



4. **Net Profit Margin**
   Net profit margin indicates the percentage of revenue that translates into profit after all expenses. It's crucial for understanding overall profitability. In an E-Commerce firm, it helps gauge cost efficiency and pricing strategies.

   → **Visualisation Type:** Gauge
   A gauge visualisation shows performance against a target range. Net profit margin as a percentage is well-suited to this format, providing a clear visual of whether the margin is within a desired range.

5. **Average Order Value (AOV)**
   AOV measures the average amount spent each time a customer places an order. It's an important metric for understanding customer purchasing behavior and effectiveness of upselling strategies. Thus, it indicates revenue potential per customer.

   → **Visualisation Type:** Gauge
   The gauge visualization effectively shows how the AOV measures up against targets, offering an immediate visual cue if the AOV is within the desired range or needs improvement.

6. **Top 10 Selling Products**
   This metric identifies the best-performing products by sales volume. It's crucial for inventory management, marketing strategies, and product development. So, it highlights the products driving the most revenue.

   → **Visualisation Type:** Treemap
   A treemap displays the proportion of sales each product contributes. The size and color of blocks allow for quick identification of top-selling products and their relative sales volumes.

7. **Revenue vs Cost**
   This metric compares total revenue against the cost incurred. It's essential for understanding profitability and cost management. Here, it shows how effectively the firm is converting revenue into profit.

   → **Visualisation Type:** Clustered Column Chart

The clustered column chart facilitates a side-by-side comparison of revenue and costs over time, making it easy to see the relationship and trends between these two critical metrics.

8. **EBITDA Margin**
   EBITDA margin shows the proportion of EBITDA relative to total revenue. It indicates operational efficiency. It helps assess how much of the revenue is turning into operating profit.

   → **Visualisation Type:** Shaded Line Chart
   A shaded line chart effectively shows trends over time, with shading indicating the range of values. This is suitable for EBITDA margin to visualize its fluctuation over time and highlight trends.

9. **Revenue by States**
   This metric shows the distribution of revenue across different geographical locations. It's vital for regional performance analysis and targeted marketing. It helps identify strong and weak markets.

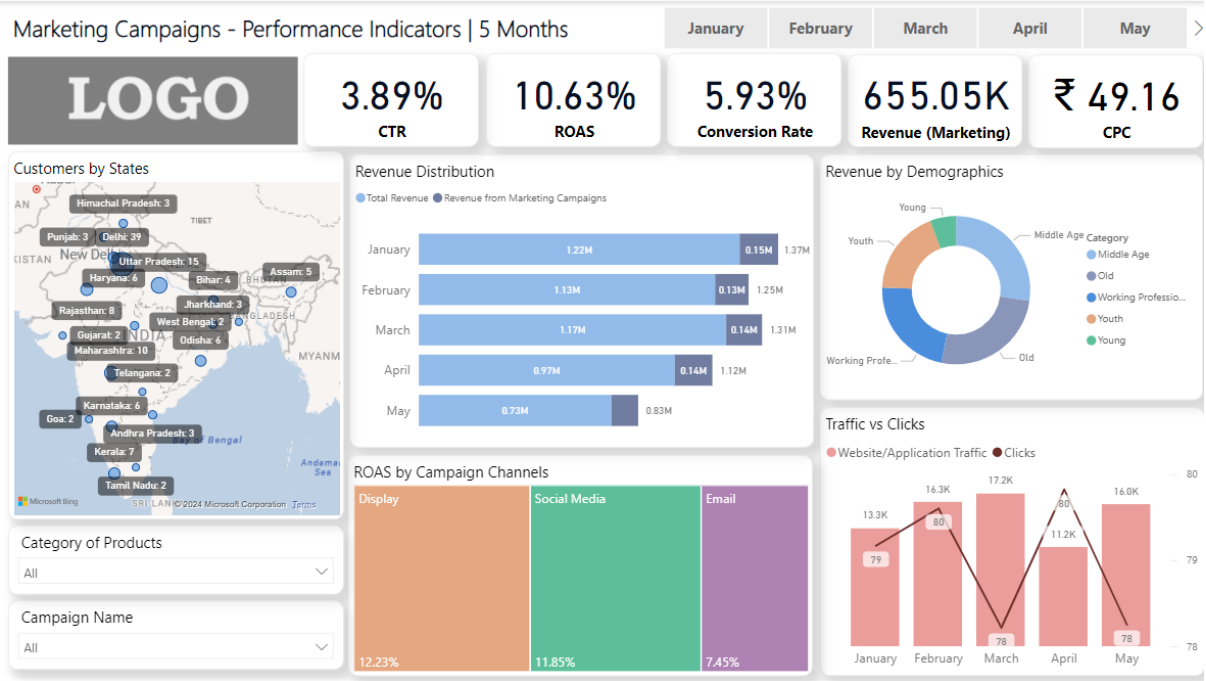
   → **Visualisation Type:** Map
   A map visualization is ideal for geographic data, allowing clear and immediate understanding of regional performance. It highlights which states are driving revenue and where there may be opportunities for growth.

10. **Revenue by Sales Channels**
    This metric breaks down revenue by different sales channels (Marketplace, Website/Application and Retail). It's crucial for channel performance analysis and strategy optimisation. It shows the effectiveness of various sales avenues.

    → **Visualisation Type:** Donut Chart
    A donut chart is suitable for showing parts of a whole, making it easy to compare the proportion of total revenue contributed by each sales channel. It provides a clear visual representation of channel performance.

    → **Tooltip:** Basket Size (the average number of items a customer is likely to purchase throughout the year)

Marketing Dashboard



Key Performance Indicators

1. **Click-through Rate (CTR)**
   CTR measures the percentage of people who clicked on an ad after seeing it. It is crucial for assessing the effectiveness of ad creatives and targeting. In a marketing context, a higher CTR indicates more compelling advertisements.

   → **Visualisation Type:** Score Card
   A scorecard prominently displays a single key metric, making it easy to quickly assess the performance of ad campaigns.

2. **Return on Advertisement Spend (ROAS)**
   ROAS calculates the revenue earned for every unit currency spent on advertising. It is vital for understanding the profitability of marketing efforts. High ROAS indicates efficient ad spend.

   → **Visualisation Type:** Score Card

3. **Conversion Rate**
   Conversion rate measures the percentage of users who completed a desired action (e.g., purchase) out of the total visitors. It is crucial for evaluating the effectiveness of marketing strategies.

   → **Visualisation Type:** Score Card
   A scorecard provides a clear and immediate view of the conversion rate, highlighting the success of marketing efforts.

4. **Revenue from Marketing Campaigns**

This metric indicates the total revenue generated from marketing campaigns. It is essential for measuring the financial impact of marketing activities.

→ **Visualisation Type:** Score Card
A scorecard effectively highlights the total revenue figure, making it easy to see the direct financial returns from marketing efforts.

5. **Cost per Click (CPC)**
CPC measures the cost incurred for each click on an ad. It helps in budgeting and assessing the cost-effectiveness of ad campaigns.

→ **Visualisation Type:** Score Card

6. **Customers by States**
This metric shows the geographic distribution of customers. It is vital for regional marketing strategies and understanding market penetration.

→ **Visualisation Type:** Map

7. **Revenue Distribution**
This metric breaks down total revenue and the portion of the revenue coming from the marketing efforts.

→ **Visualisation Type:** Stacked Bar Chart
A stacked bar chart allows for a clear comparison of revenue across different categories, showing the relative contribution of marketing revenue to the total revenue.

8. **ROAS by Campaign Channels**
This metric measures the ROAS for different marketing channels. It is crucial for determining which channels are most effective.

→ **Visualisation Type:** Treemap
A treemap displays the proportionate ROAS for each channel, making it easy to identify the most and least effective channels at a glance.

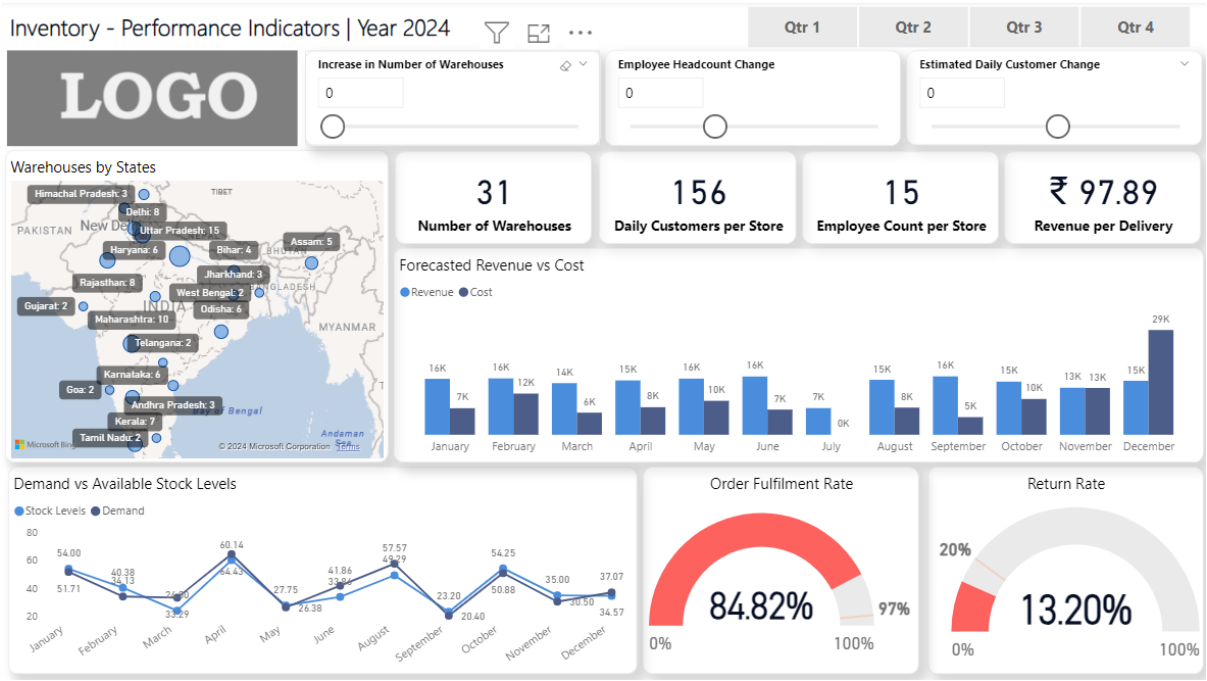
9. **Revenue by Demographics**
This metric shows revenue broken down by the age groups. It helps in targeting and tailoring marketing strategies.

→ **Visualisation Type:** Donut Chart
A donut chart effectively shows the proportion of revenue from each demographic segment, allowing for quick comparison and analysis.

10. **Traffic vs Clicks**
This metric compares website traffic to the number of clicks on ads. It is important for understanding the engagement and effectiveness of ads.

→ **Visualisation Type:** Line and Column Chart
A line and column chart allows for simultaneous visualization of two related data sets, making it easy to compare trends in traffic and clicks over time.

Inventory Dashboard



Key Performance Indicators

1. **Increase in the Number of Warehouses (modifiable)**
   Tracks the planned or actual increase in the number of warehouses over a period. Important for capacity planning and logistics.

   → **Visualisation Type:** Dynamic Button (modifiable)
   Dynamic buttons allow users to adjust and simulate different scenarios, providing flexibility in planning and analysis.

2. **Employee Headcount Change (modifiable)**
   Measures the change in the number of employees. Important for workforce planning and cost management.

   → **Visualisation Type:** Dynamic Button (modifiable)

3. **Estimated Daily Customer Change (modifiable)**
   Tracks changes in the estimated number of daily customers. Vital for demand forecasting and resource allocation.

   → **Visualisation Type:** Dynamic Button (modifiable)

4. **Number of Warehouses (modified)**
   Indicates the total number of operational warehouses. Essential for understanding storage capacity and distribution network.

   → **Visualisation Type:** Score Card (modified)

5. **Daily Customers per Store (modified)**

Shows the average number of daily customers per store. Important for performance measurement and resource planning.

→ **Visualisation Type:** Score Card (modified)

6. **Employee Count per Store (modified)**
   Indicates the average number of employees per store. Crucial for workforce planning and operational efficiency.

   → **Visualisation Type:** Score Card (modified)

7. **Revenue per Delivery (forecasted)**
   Measures the average revenue generated per delivery. Important for profitability analysis and logistics planning.

   → **Visualisation Type:** Score Card (forecasted)
   - The modifiable metrics affect the forecasted revenue in the following way – Increase in number of warehouses (+2.5%), Employee Headcount Change (-2%), Change in Customer per Store (+5%)

8. **Forecasted Revenue vs Cost (forecasted)**
   Compares the projected revenue against costs. Essential for budgeting and financial planning.

   → **Visualisation Type:** Clustered Column Chart (forecasted)
   The modifiable metrics affect the forecasted cost in the following way (concept of 'economies of scale' deployed)–
   - Scenario 1: If Daily Customer ≥ 100 – Employee Headcount Change (-2%), Change in Customer per Store (-3%)
   - Scenario 2: If Daily Customer < 100 – Employee Headcount Change (-2%), Change in Customer per Store (+10%)
   - Scenario 3: If Employee Headcount > 6 – Employee Headcount Change (-1.5%)
   - Scenario 4: If Employee Headcount < 7 – Employee Headcount Change (+1.5%), Change in Customer per Store (5%)
   - Increase in number of warehouses (+2%)

9. **Demand vs Available Stocks (in units)**
   Compares the demand for products against available stock levels. Critical for inventory management and ensuring product availability.

   → **Visualisation Type:** Line Chart
   A line chart effectively shows trends over time, making it easy to see the relationship between demand and stock levels.

10. **Order Fulfilment Rate**
    Indicates the percentage of orders fulfilled on time. Important for customer satisfaction and operational efficiency.

→ **Visualisation Type:** Gauge
A gauge provides an immediate visual indication of performance against a target, making it easy to see if the fulfilment rate is within an acceptable range.

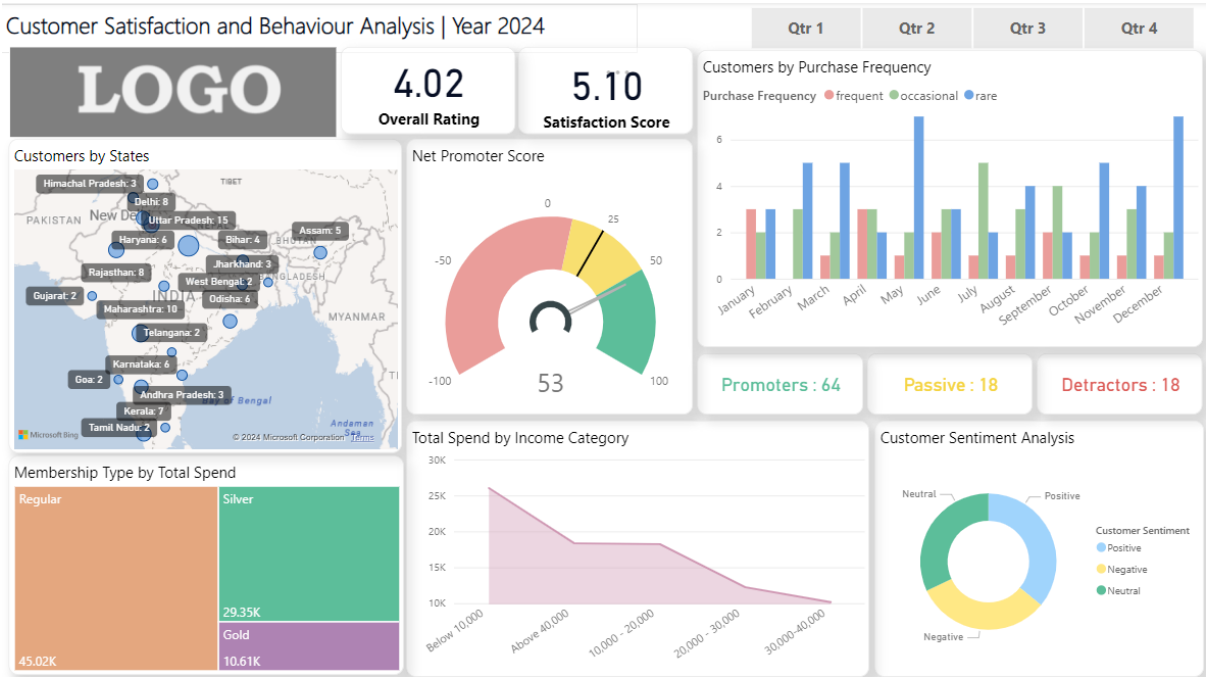
11. **Return Rate**
Measures the percentage of products returned. Important for quality control and customer satisfaction.

→ **Visualisation Type:** Gauge

12. **Warehouses by States**
Shows the geographic distribution of warehouses. Vital for logistics and distribution planning.

→ **Visualisation Type:** Map

Customer Satisfaction and Behaviour Analysis



Key Performance Indicators

1. **Overall Rating (out of 5)**
   Reflects the average rating given by customers, for the orders placed. Important for gauging overall customer satisfaction.

   → **Visualisation Type:** Score Card

2. **Satisfaction Score (out of 7)**
   Measures customer satisfaction on a scale of 1 to 7. Crucial for understanding detailed customer sentiment.

   → **Visualisation Type:** Score Card

3. **Customers by States**
   Shows the geographic distribution of customers. Vital for regional analysis and targeted marketing.

   → **Visualisation Type:** Map

4. **Membership Type by Total Spend**
   Displays the total spend by different membership types. Important for understanding the value of different customer segments.

   → **Visualisation Type:** Treemap
   A treemap effectively shows the proportion of total spend from each membership type, making it easy to identify high-value segments.

5. **Net Promoter Score (NPS)**

Measures customer loyalty and likelihood to recommend the company. Crucial for understanding customer advocacy. NPS = % promoters - % detractors.

→ **Visualisation Type:** Tachometer
A tachometer (or gauge) provides a clear and immediate visual representation of the NPS, showing how it compares to target ranges.

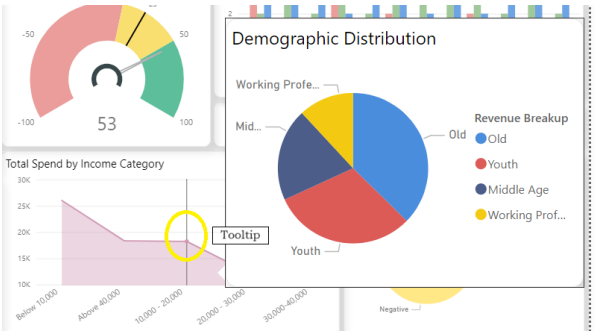
6. **Promoters/Passive/Detractors**
Breaks down the NPS into promoters, passives, and detractors. Important for detailed customer loyalty analysis.

→ **Visualisation Type:** Score Cards

7. **Total Spend by Income Category**
Shows how total spend varies across different income categories. Important for understanding spending patterns and targeting marketing efforts.

→ **Visualisation Type:** Shaded Line Chart
A shaded line chart effectively shows trends over time and highlights variations between income categories, making it easy to identify patterns.

→ **Tooltip:** Total spend by age groups



8. **Customers by Purchase Frequency**
Displays the distribution of customers based on how frequently they make purchases. Important for understanding customer behavior and segmenting the market.

→ **Visualisation Type:** Clustered Column Chart
A clustered column chart allows for clear comparison of different purchase frequency categories, showing the distribution and highlighting trends.

9. **Customer Sentiment Analysis**
It analyzes customer feedback to determine its overall sentiment (positive, neutral, negative). This is important for understanding customer feelings and improving service. It works by sorting out keywords from User Reviews and putting them in the 3 sentiment baskets.

→ **Visualisation Type:** Donut Chart

Operating Profit – Driver Tree

The number of transactions affects:

- Manufacturing employee headcount
- Warehouse labour headcount
- Administrative/managerial employee headcount
- Number of office spaces
- Number of warehouses

The above-mentioned metrics are calculated for the following ranges of 'Transactions':

- 50,00,000 -2,00,00,000
- 20,000,000 - 40,000,000
- 40,000,000 - 60,000,000
- 60,000,000 - 80,000,000
- 80,000,000 - 100,000,000

Assumptions and Calculations

- **Number of Employees per Office Space:** Assume 100 employees per office space.
- **Number of Office Spaces:** The number of office spaces will depend on the total number of employees, which will be calculated based on the number of transactions. A common metric is 1 employee per 1,000 transactions annually.
- **Number of Warehouses:** The number of warehouses will be determined by the volume of transactions. A common guideline is 1 warehouse per 10 million transactions annually.

Assumptions for Managerial Employees

1. **Ratio of Managerial Employees to Total Employees:** Assume 1 managerial employee for every 10 total employees.
2. **Number of Managerial Employees per Office Space:** Assume 50 managerial employees per office space (as managerial offices typically require more space per employee compared to general office space).

Detailed Calculations

1) **Transactions: 5,000,000 - 20,000,000**

- **Average Transactions:** (5,000,000+20,000,000)/2=12,500,000(5,000,000 + 20,000,000) / 2 = 12,500,000(5,000,000+20,000,000)/2=12,500,000
- **Total Number of Employees:** 12,500,000/1,000=12,50012,500,000 / 1,000 = 12,50012,500,000/1,000=12,500
- **Number of Managerial Employees:** 12,500/10=1,25012,500 / 10 = 1,25012,500/10=1,250
- **Number of Office Spaces for Managers:** 1,250/50=251,250 / 50 = 251,250/50=25
- **Number of Warehouses:** 12,500,000/10,000,000=1.2512,500,000 / 10,000,000 = 1.2512,500,000/10,000,000=1.25 ~ 2

2) **Transactions: 20,000,000 - 40,000,000**

- **Average Transactions:** (20,000,000+40,000,000)/2=30,000,000(20,000,000 + 40,000,000) / 2 = 30,000,000(20,000,000+40,000,000)/2=30,000,000
- **Total Number of Employees:** 30,000,000/1,000=30,00030,000,000 / 1,000 = 30,00030,000,000/1,000=30,000
- **Number of Managerial Employees:** 30,000/10=3,00030,000 / 10 = 3,00030,000/10=3,000
- **Number of Office Spaces for Managers:** 3,000/50=603,000 / 50 = 603,000/50=60
- **Number of Warehouses:** 30,000,000/10,000,000=330,000,000 / 10,000,000 = 330,000,000/10,000,000=3

3) **Transactions: 40,000,000 - 60,000,000**

- **Average Transactions:** (40,000,000+60,000,000)/2=50,000,000(40,000,000 + 60,000,000) / 2 = 50,000,000(40,000,000+60,000,000)/2=50,000,000
- **Total Number of Employees:** 50,000,000/1,000=50,00050,000,000 / 1,000 = 50,00050,000,000/1,000=50,000
- **Number of Managerial Employees:** 50,000/10=5,00050,000 / 10 = 5,00050,000/10=5,000
- **Number of Office Spaces for Managers:** 5,000/50=1005,000 / 50 = 1005,000/50=100
- **Number of Warehouses:** 50,000,000/10,000,000=550,000,000 / 10,000,000 = 550,000,000/10,000,000=5

4) **Transactions: 60,000,000 - 80,000,000**

- **Average Transactions:** (60,000,000+80,000,000)/2=70,000,000(60,000,000 + 80,000,000) / 2 = 70,000,000(60,000,000+80,000,000)/2=70,000,000
- **Total Number of Employees:** 70,000,000/1,000=70,00070,000,000 / 1,000 = 70,00070,000,000/1,000=70,000
- **Number of Managerial Employees:** 70,000/10=7,00070,000 / 10 = 7,00070,000/10=7,000
- **Number of Office Spaces for Managers:** 7,000/50=1407,000 / 50 = 1407,000/50=140
- **Number of Warehouses:** 70,000,000/10,000,000=770,000,000 / 10,000,000 = 770,000,000/10,000,000=7

5) **Transactions: 80,000,000 - 100,000,000**

- **Average Transactions:** (80,000,000+100,000,000)/2=90,000,000(80,000,000 + 100,000,000) / 2 = 90,000,000(80,000,000+100,000,000)/2=90,000,000
- **Total Number of Employees:** 90,000,000/1,000=90,00090,000,000 / 1,000 = 90,00090,000,000/1,000=90,000
- **Number of Managerial Employees:** 90,000/10=9,00090,000 / 10 = 9,00090,000/10=9,000
- **Number of Office Spaces for Managers:** 9,000/50=1809,000 / 50 = 1809,000/50=180
- **Number of Warehouses:** 90,000,000/10,000,000=990,000,000 / 10,000,000 = 990,000,000/10,000,000=9

To determine the number of labor employees specifically in manufacturing and warehouse/inventory, we'll make the following assumptions:

1. **Percentage of Total Employees in Manufacturing:** 60%
2. **Percentage of Total Employees in Warehouse/Inventory:** 30%
3. **Remaining Percentage for Managerial and Other Roles:** 10% (as previously calculated)

Using these percentages, let's calculate the number of labor employees for both manufacturing and warehouse/inventory in each scenario.

Detailed Calculations for Labor Employees

1) **Transactions: 5,000,000 to 20,000,000**

- **Average Transactions:** (5,000,000+20,000,000)/2=12,500,000(5,000,000 + 20,000,000) / 2 = 12,500,000(5,000,000+20,000,000)/2=12,500,000
- **Total Number of Employees:** 12,500,000/1,000=12,50012,500,000 / 1,000 = 12,50012,500,000/1,000=12,500
- **Number of Managerial Employees:** 12,500×0.10=1,25012,500 \times 0.10 = 1,25012,500×0.10=1,250
- **Number of Labor Employees in Manufacturing:** 12,500×0.60=7,50012,500 \times 0.60 = 7,50012,500×0.60=7,500
- **Number of Labor Employees in Warehouse/Inventory:** 12,500×0.30=3,75012,500 \times 0.30 = 3,75012,500×0.30=3,750

2) **Transactions: 20,000,000 - 40,000,000**

- **Average Transactions:** (20,000,000+40,000,000)/2=30,000,000(20,000,000 + 40,000,000) / 2 = 30,000,000(20,000,000+40,000,000)/2=30,000,000
- **Total Number of Employees:** 30,000,000/1,000=30,00030,000,000 / 1,000 = 30,00030,000,000/1,000=30,000
- **Managerial Employees:** 30,000/10=3,00030,000 / 10 = 3,00030,000/10=3,000 (previously calculated)
- **Labor Employees in Manufacturing:** 30,000×0.60=18,00030,000 \times 0.60 = 18,00030,000×0.60=18,000
- **Labor Employees in Warehouse/Inventory:** 30,000×0.30=9,00030,000 \times 0.30 = 9,00030,000×0.30=9,000

3) **Transactions: 40,000,000 - 60,000,000**

- **Average Transactions:** (40,000,000+60,000,000)/2=50,000,000(40,000,000 + 60,000,000) / 2 = 50,000,000(40,000,000+60,000,000)/2=50,000,000
- **Total Number of Employees:** 50,000,000/1,000=50,00050,000,000 / 1,000 = 50,00050,000,000/1,000=50,000
- **Managerial Employees:** 50,000/10=5,00050,000 / 10 = 5,00050,000/10=5,000 (previously calculated)
- **Labor Employees in Manufacturing:** 50,000×0.60=30,00050,000 \times 0.60 = 30,00050,000×0.60=30,000
- **Labor Employees in Warehouse/Inventory:** 50,000×0.30=15,00050,000 \times 0.30 = 15,00050,000×0.30=15,000

4) **Transactions: 60,000,000 - 80,000,000**

- **Average Transactions:** (60,000,000+80,000,000)/2=70,000,000(60,000,000 + 80,000,000) / 2 = 70,000,000(60,000,000+80,000,000)/2=70,000,000
- **Total Number of Employees:** 70,000,000/1,000=70,00070,000,000 / 1,000 = 70,00070,000,000/1,000=70,000
- **Managerial Employees:** 70,000/10=7,00070,000 / 10 = 7,00070,000/10=7,000 (previously calculated)
- **Labor Employees in Manufacturing:** 70,000×0.60=42,00070,000 \times 0.60 = 42,00070,000×0.60=42,000

- **Labor Employees in Warehouse/Inventory:** 70,000×0.30=21,00070,000 \times 0.30 = 21,00070,000×0.30=21,000

5) Transactions: 80,000,000 - 100,000,000

- **Average Transactions:** (80,000,000+100,000,000)/2=90,000,000(80,000,000 + 100,000,000) / 2 = 90,000,000(80,000,000+100,000,000)/2=90,000,000
- **Total Number of Employees:** 90,000,000/1,000=90,00090,000,000 / 1,000 = 90,00090,000,000/1,000=90,000
- **Managerial Employees:** 90,000/10=9,00090,000 / 10 = 9,00090,000/10=9,000 (previously calculated)
- **Labor Employees in Manufacturing:** 90,000×0.60=54,00090,000 \times 0.60 = 54,00090,000×0.60=54,000
- **Labor Employees in Warehouse/Inventory:** 90,000×0.30=27,00090,000 \times 0.30 = 27,00090,000×0.30=27,000

Summary Tables

Case	Transactions Range	Total Number of Employees	Managerial Employees	Labor Employees in Manufacturing	Labor Employees in Warehouse/Inventory
1	5,000,000 to 20,000,000	12,500	1,250	7,500	3,750
2	20,000,000 to 40,000,000	30,000	3,000	18,000	9,000
3	40,000,000 to 60,000,000	50,000	5,000	30,000	15,000
4	60,000,000 to 80,000,000	70,000	7,000	42,000	21,000
5	80,000,000 to 100,000,000	90,000	9,000	54,000	27,000

Case	Transactions Range	Average Transactions	Total Number of Employees	Number of Managerial Employees	Number of Office Spaces for Managers	No. of Warehouses
1	5,000,000 to 20,000,000	12,500,000	12,500	1,250	25	2
1	20,000,000 to 40,000,000	30,000,000	30,000	3,000	60	3
2	40,000,000 to 60,000,000	50,000,000	50,000	5,000	100	5
3	60,000,000 to 80,000,000	70,000,000	70,000	7,000	140	7
4	80,000,000 to 100,000,000	90,000,000	90,000	9,000	180	9