

Practical No. 05

DVA

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TITLE

Global Super Store Sales Analysis

1. DATASET

The Global Superstore dataset is a detailed simulation of retail sales operations across multiple countries. It contains 15,290 rows, each representing a unique transaction, and 21 columns that capture various aspects of the sales process. This dataset is valuable for analysing customer behaviour, product performance, and sales trends in a retail environment.

Description of the columns:

- Order ID: Unique code for each order.
- Order Date: Date when the order was placed.
- Ship Date: Date when the order was shipped.
- Ship Mode: Method used to ship the order (e.g., standard, express).
- Customer ID: Unique code for each customer.
- Customer Name: Full name of the customer.
- Segment: Type of customer (e.g., Home Office, Corporate).
- Country: Country where the customer lives.
- City: City where the customer lives.
- State: State where the customer lives.
- Postal Code: Postal code of the customer's address.
- Region: Geographic region of the customer's location.
- Product ID: Unique code for each product.
- Category: Broad category of the product (e.g., Furniture, Office Supplies, Technology).
- Sub-Category: Specific type of product within the category (e.g., Chairs, Paper, Phones).
- Product Name: Name of the product.
- Sales: Total sales revenue for the product.
- Quantity: Number of units of the product sold.
- Discount: Discount applied to the product.
- Profit: Total profit earned from the product.
- Shipping Cost: Shipping cost of the product
- Order Priority: Divided in Medium, Low, High and Critical.

2. DASHBOARD

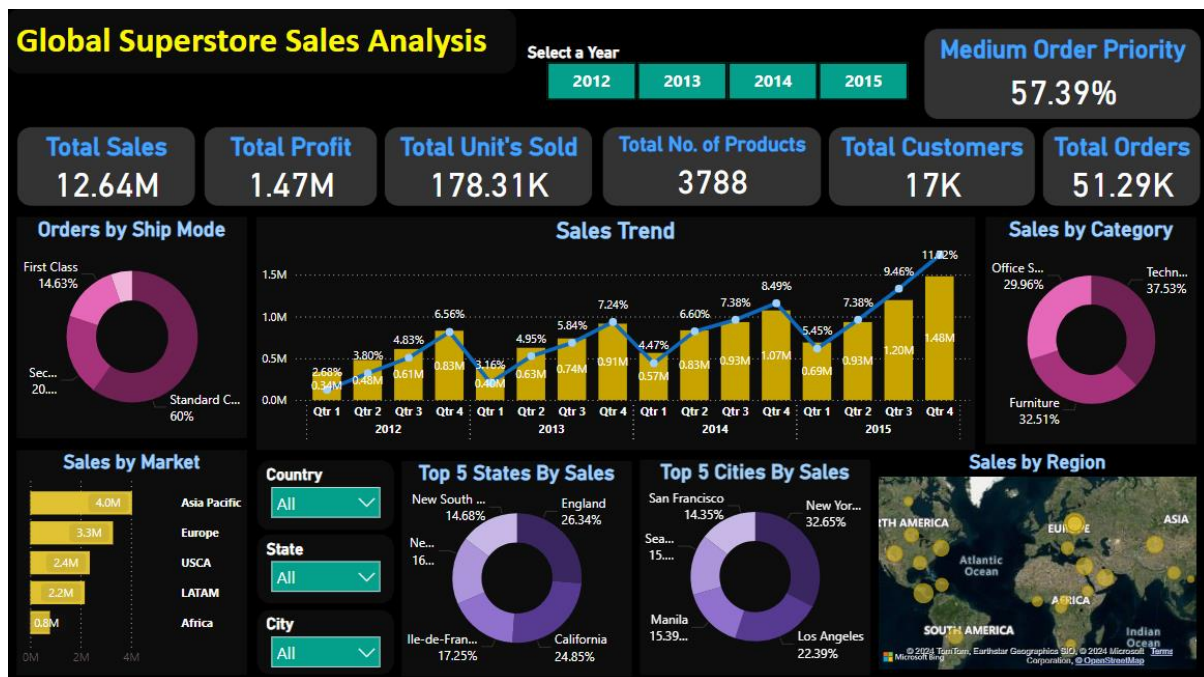


Fig 1.1

The "Global Superstore Sales Analysis" dashboard gives a clear summary of the store's sales performance across different regions and time periods. It starts by showing key numbers like total sales of \$12.64 million, total profit of \$1.47 million, and 178,310 units sold. The dashboard also highlights the variety of products available, with 3,788 different items sold to 17,000 customers, resulting in 51,290 orders overall.

The sales trend is shown in a line chart, indicating a steady rise in sales from the first quarter of 2012 to the fourth quarter of 2015. There are noticeable peaks in sales during the fourth quarter each year, which suggests high demand during that time. A donut chart breaks down the orders by shipping method, with Standard Class being the most used at 60%, followed by Second Class at 20.96%, First Class at 14.63%, and Same Day at 4.41%.

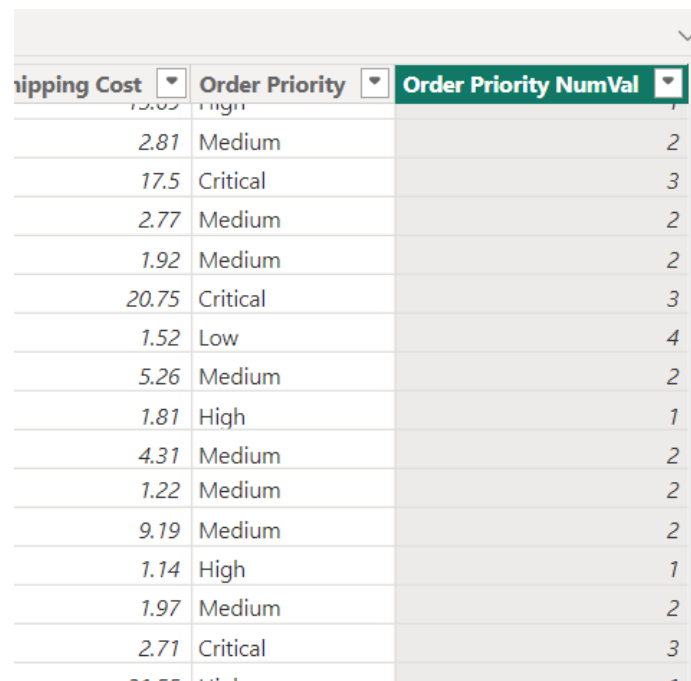
Another donut chart shows how sales are split across product categories. Technology products make up the largest share at 37.53%, followed by Furniture at 32.51%, and Office Supplies at 29.96%. A bar chart presents sales across different regions, with the United States and Canada (USCA) leading at \$4.0 million, followed by Europe at \$3.3 million, Asia Pacific at \$2.4 million, Latin America (LATAM) at \$2.2 million, and Africa at \$0.8 million.

The dashboard also highlights the top 5 states and cities by sales, with England and New York leading in their categories. A world map shows the spread of sales across different regions, emphasizing the store's global presence. Additionally, the dashboard shows that 57.39% of orders are classified as "Medium Order Priority." Interactive filters for year, country, state, and city allow users to adjust the data displayed based on specific criteria, making the dashboard easy to use and informative.

3. TRANSFORMATION AND DAX QURIES

In the analysis of the Global Superstore Sales, a transformation was applied to the "Order Priority" field, where the priority levels were converted into numeric values: "Low" was assigned a value of 1, "Medium" a value of 2, "High" a value of 3, and "Critical" a value of 4[fig 1.2]. Following this transformation, a DAX query [fig 1.3] was written to calculate the percentage of orders that have a medium order priority. This calculation helps in understanding the distribution of orders based on their priority levels, specifically focusing on the medium priority orders.

DAX query : OrderPriority2Percent = `DIVIDE(CALCULATE(COUNTROWS(Orders), Orders[Order Priority NumVal] = 2), CALCULATE(COUNTROWS(Orders), Orders[Order Priority NumVal] IN {1, 2, 3, 4})), 0)`



Shipping Cost	Order Priority	Order Priority NumVal
13.82	High	3
2.81	Medium	2
17.5	Critical	4
2.77	Medium	2
1.92	Medium	2
20.75	Critical	4
1.52	Low	1
5.26	Medium	2
1.81	High	3
4.31	Medium	2
1.22	Medium	2
9.19	Medium	2
1.14	High	3
1.97	Medium	2
2.71	Critical	4
21.55	High	3

Fig 1.2

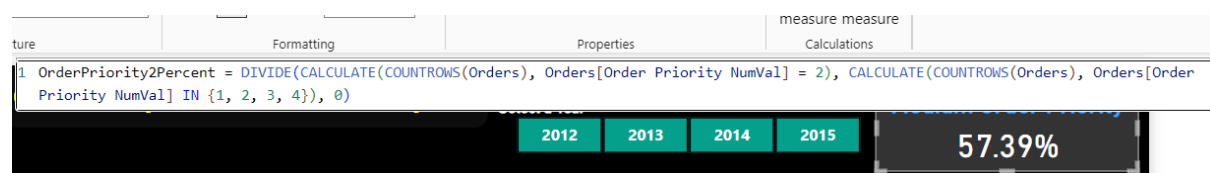


Fig 1.3

Additionally, DAX queries were developed to calculate several key metrics essential for the analysis. These include the total sales, which aggregates all the revenue generated by the store, and the total profit, which is calculated by subtracting costs from the total sales. The total units sold were also calculated, providing a sum of all individual products sold across all orders [fig 1.4].

```
1 Total Customers = DISTINCTCOUNT(Orders[Customer ID])
```

```
1 Total No. of Products = DISTINCTCOUNT(Orders[Product ID])
```

Fig 1.4

```
1 Total Orders = COUNT(Orders[Order ID])
```

```
1 Total Profit = SUM(Orders[Profit])
```

```
1 Total Qty's Sold = SUM(Orders[Quantity])
```

```
1 Total Sales = SUM(Orders[Sales])
```

Fig 1.5

Moreover, DAX queries were created to determine the total number of unique products sold, which helps in understanding the variety offered by the store. The total number of customers was also calculated, indicating the reach and customer base of the store. Finally, the total number of orders was computed, representing the volume of transactions handled by the store. These metrics provide a comprehensive overview of the store's performance and are critical for the analysis presented in the dashboard [fig 1.5].

4. INTERACTIVE COMPONENTS AND ANALYSIS

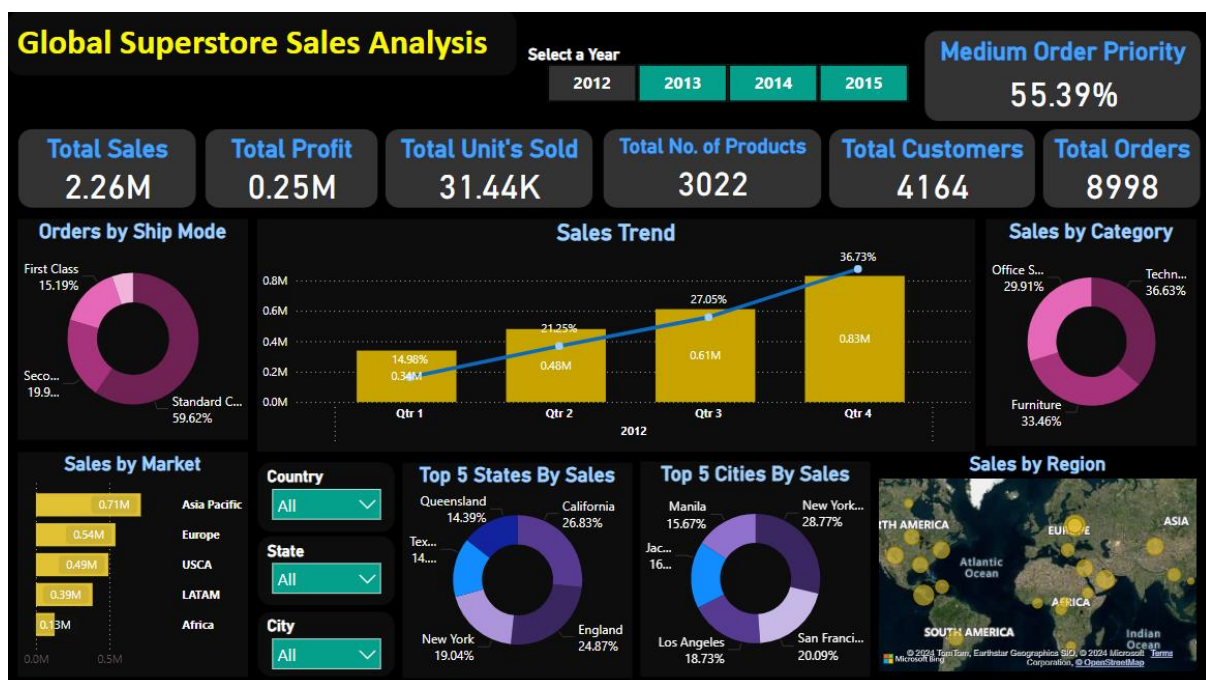


Fig 1.6

The **fig 1.6** provides a comprehensive overview of the Global Superstore's sales performance for 2012, with a **slider** feature that allows users to view data for different years. Key metrics include total sales of \$2.26 million, total profit of \$0.25 million, and 31,440 units sold across 3,022 products to 4,164 customers with 8,998 orders. The quarterly sales trend shows significant growth, peaking at 34.37% in Q4. The "Orders by Ship Mode" chart indicates that 59.68% of orders were shipped via Standard Class. The "Sales by Category" chart reveals that Technology led with 36.54% of sales. Additionally, the sales distribution is highlighted by market, state, city, and region, with Europe leading at \$0.94 million. The dashboard also notes that 55.39% of orders were of medium priority, visualized alongside a geographic distribution on a world map.

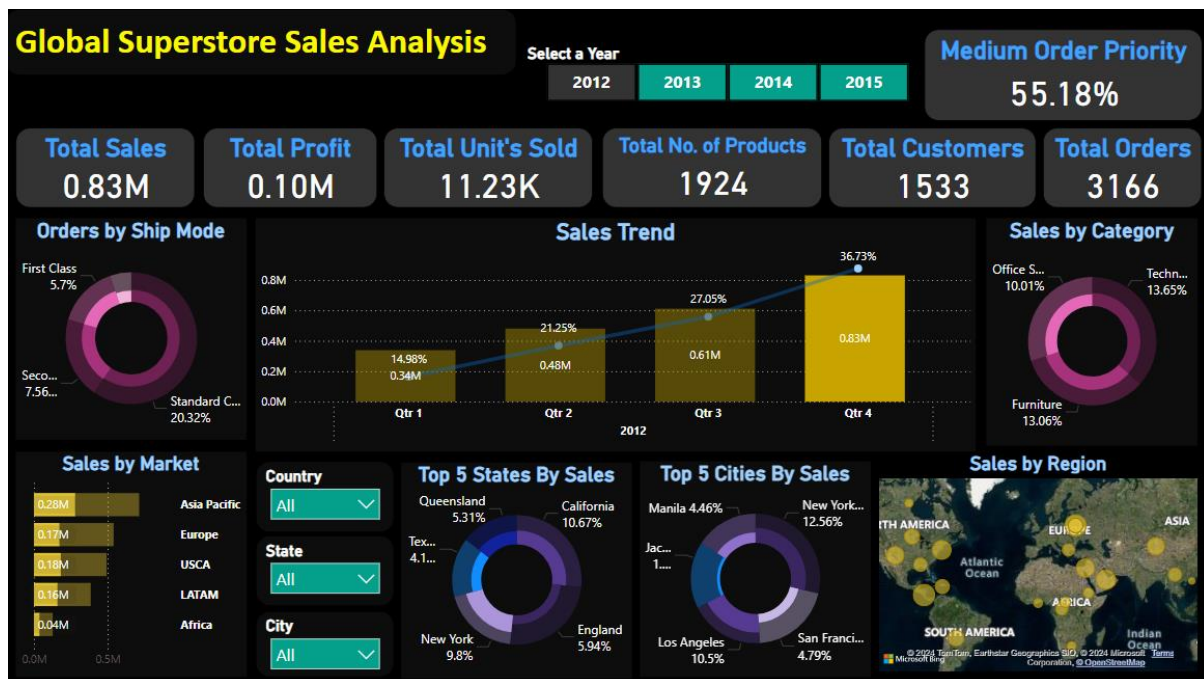


Fig 1.7

The dashboard in fig 1.7 displays Q4 2012 data, showing \$0.83M in sales, 11.23K units sold, with Technology leading at 33.63%.

In the dashboard fig 1.8, a filter has been applied to the pie chart titled "Orders by Ship Mode," which affects the display of data across the dashboard. The pie chart now shows that a significant portion of orders (59.31%) is shipped via Standard Class, with reduced visibility for other shipping modes. This filter is reflected across other metrics, such as total sales, units sold, and customer distribution, providing a focused analysis based on the selected criteria. As a result, the data presented in other charts, including sales by market, category, and region, is also filtered according to the shipping mode specified.

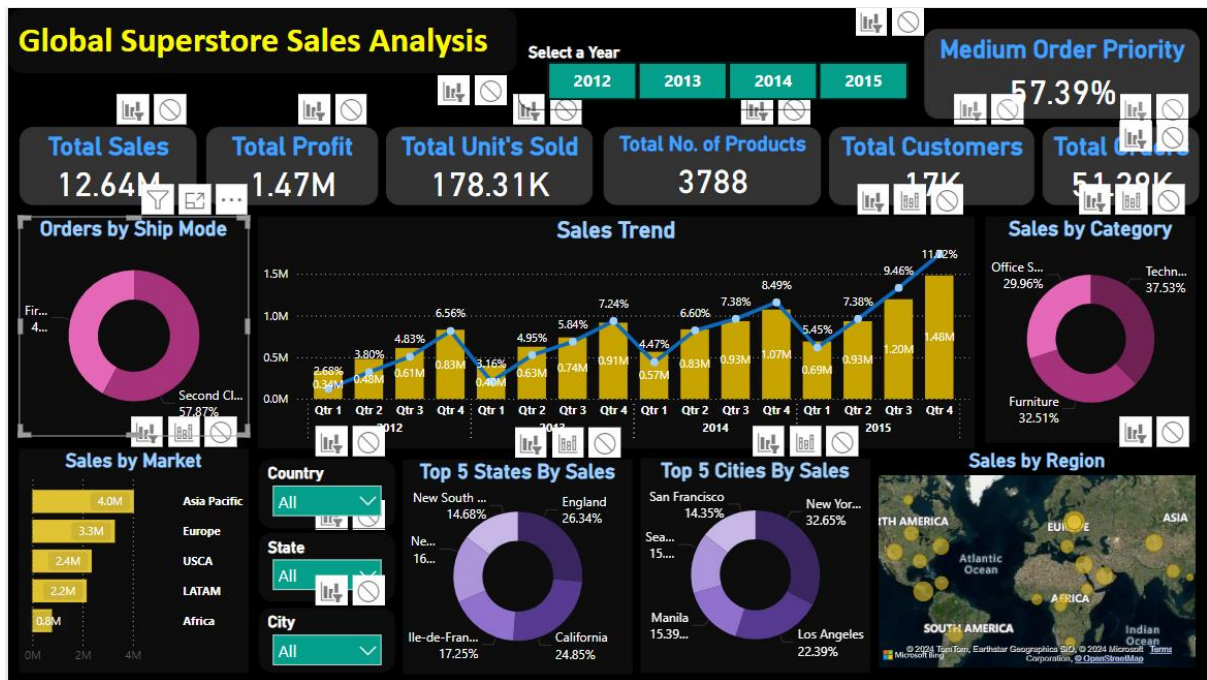


Fig 1.8



Fig 1.9

The dashboard in fig 1.9 shows a detailed sales analysis of a global superstore for the year 2012, as selected in the slicer. The total sales amount to \$0.86 million with a profit of \$0.06 million. A total of 7.27K units were sold across 678 different products to 1,476 customers. The medium order priority is highlighted at 0.68%. The sales trend graph shows quarterly performance with a peak in Q4 (35.16%). Sales data is further broken down by category, market, region, states, and cities. The top-performing state is New York (64.1%), while Seattle leads in city sales (11.14%).

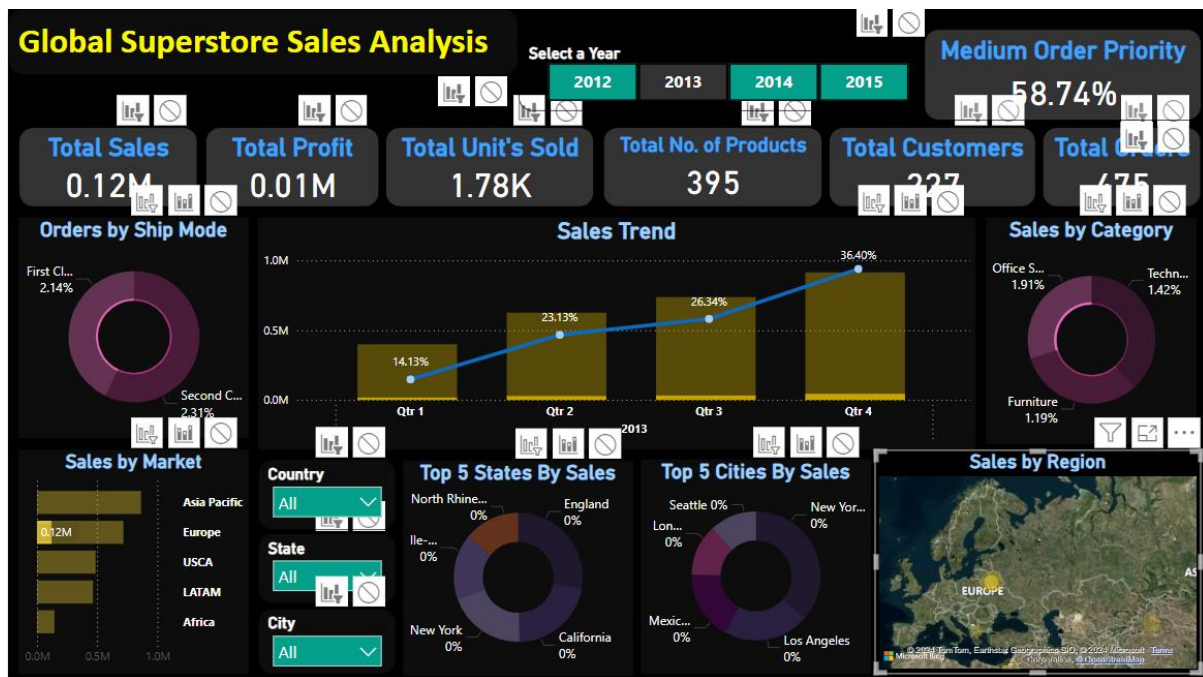


Fig 1.10

The dashboard Fig 1.10 presents a sales analysis for the global superstore in 2012, with Europe selected on the map. Total sales amount to \$0.12 million, generating a profit of \$0.01 million. The store sold 1.78K units across 395 products to 227 customers, with a medium order priority of 58.74%. The sales trend graph shows quarterly performance, peaking in Q4 (36.40%). The "Orders by Ship Mode" and "Sales by Category" sections are dominated by First Class and Technology, respectively. The "Top 5 States by Sales" and "Top 5 Cities by Sales" charts indicate no significant data points for the selected filters.

5. VARIOUS INFERENCE

Quarterly Performance Consistency: Across the dashboards, the fourth quarter (Q4) consistently shows a significant increase in sales, indicating strong year-end performance for the Global Superstore.

Regional Leadership: Europe is a dominant region in sales, particularly highlighted in Fig 1.10, where it contributes \$0.94 million in sales, emphasizing its importance in the global market.

Product Category Focus: Technology consistently leads in sales across multiple figures, indicating that it is the most profitable category for the Global Superstore.

Shipping Mode Preferences: The preference for Standard Class shipping is evident, with over 59% of orders being shipped this way in both Fig 1.6 and Fig 1.8, suggesting it's the most cost-effective and popular option among customers.

Sales Distribution: Sales are well-distributed across various markets, states, and cities, with specific areas like New York and Seattle standing out in different dashboards, showing regional sales strengths.

Medium Order Priority: There's a notable emphasis on medium order priority, with percentages ranging from 55.39% to 58.74%, indicating that the majority of the orders are neither high nor low priority but balanced.

Filtered Analysis Impact: The application of filters, such as in Fig 1.8, significantly alters the visibility of data across the dashboard, showcasing the power of focused analysis in understanding specific aspects of the business, like shipping mode.

Customer and Order Metrics: The store caters to a broad customer base, with thousands of orders and customers tracked, reflecting the scale and reach of the Global Superstore's operations.

Profit Margins: Despite varying sales volumes across different figures, profit margins appear to be modest (e.g., \$0.06 million profit from \$0.86 million in sales in Fig 1.9), suggesting potential areas for margin improvement.

Interactive Components: The use of slicers and filters across the dashboards enhances the ability to perform targeted analyses, allowing users to delve into specific years, shipping modes, and other variables to gain tailored insights.