

# CUSTOMER SEGMENTATION ANALYSIS

# **TEAM NAME : MILKY WAY**

## **TEAM MEMBERS :**

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# INTRODUCTION

THE CUSTOMER SEGMENTATION ANALYSIS DASHBOARD IS DESIGNED TO PROVIDE INSIGHTS INTO SALES PERFORMANCE, TRENDS, AND KEY PERFORMANCE INDICATORS (KPIs). IT ENABLES USERS TO EVALUATE REGIONAL, SEGMENT-WISE, AND CATEGORY-WISE CONTRIBUTIONS TO REVENUE AND PROFITABILITY. THIS TOOL SUPPORTS DATA-DRIVEN DECISION-MAKING BY HIGHLIGHTING KEY DRIVERS OF GROWTH AND AREAS REQUIRING OPTIMIZATION.

## PURPOSE OF THE DASHBOARD:

1. Monitor Sales Performance: Track total sales, profit, and order volume across various dimensions such as regions and segments
2. Identify Trends: Analyze year-wise sales growth and category-wise contributions to revenue.
3. Evaluate Regional and Segment Insights: Compare performance metrics like average order value and profitability by region and customer segment.
4. Highlight Key Drivers of Revenue: Understand the impact of product categories on overall sales and profits.
5. Support Strategic Decisions: Provide a comprehensive view of business performance to identify opportunities and address challenges.

# DATA SOURCE

The data was sourced from multiple channels, including:

## **Excel File:**

- Containing customer orders, sales, and product information.
- For transactional data such as order history and regional performance metrics.
- For real-time updates, such as geographic customer distribution

## **Data Cleaning:**

- Handled Missing Values: Missing entries in key columns (e.g., sales or profit) were replaced using logical estimates or averages.
- Removed Duplicates: Ensured unique entries for customer IDs, orders, and products.
- Standardized Formats: Unified date formats, currency values, and regional names for consistency.

# CLEANED DATASET

	Category	Sub-Category	Product Name	Sales	Quantity	Discount	Profit	Year	Quarter
179	Office Supplies	Storage	Eldon Base for stackable storage shelf, platinum	77.88	2	0	3.893999999999999	2016	Q3
811	Office Supplies	Art	Newell 327	6.63	3	0	1.7901	2017	Q4
246	Office Supplies	Art	Newell 317	5.88	2	0	1.7052	2017	Q4
823	Office Supplies	Art	Newell 307	5.46	3	0	1.5288	2016	Q2
456	Office Supplies	Art	Panasonic KP-4ABK Battery-Operated Pencil Sharpener	73.2	5	0	21.228	2016	Q2
377	Office Supplies	Paper	Adams Telephone Message Book W/Dividers/Space For Phone Numbers, 5 1/4"X8 1/2", 200/Messages	22.72	4	0	10.224	2016	Q2
005	Office Supplies	Paper	Xerox 225	45.36	7	0	21.7728	2016	Q4
975	Office Supplies	Fasteners	Staples	11.34	3	0	5.2164	2014	Q4
996	Office Supplies	Storage	Letter/Legal File Tote with Clear Snap-On Lid, Black Granite	80.3	5	0	20.878	2014	Q4
477	Office Supplies	Paper	Xerox 1952	64.74	13	0	30.4278	2014	Q4
963	Office Supplies	Storage	Tennsco Regal Shelving Units	405.64	4	0	12.1692	2014	Q4
419	Office Supplies	Art	Newell 325	12.39	3	0	3.717	2014	Q4
692	Office Supplies	Appliances	Fellowes Mighty 8 Compact Surge Protector	60.81	3	0	17.0268	2016	Q2
457	Office Supplies	Paper	White GlueTop Scratch Pads	90.24	6	0	41.5104	2014	Q4
675	Office Supplies	Storage	File Shuttle II and Handi-File, Black	305.01	9	0	76.2525	2017	Q4
375	Office Supplies	Art	Newell 351	13.12	4	0	3.8048	2014	Q2
657	Office Supplies	Art	Binney & Smith inkTank Desk Highlighter, Chisel Tip, Yellow, 12/Box	10.75	5	0	3.5475	2014	Q2
134	Office Supplies	Fasteners	Advantus Push Pins, Aluminum Head	11.62	2	0	3.6022	2014	Q2
552	Office Supplies	Paper	Xerox 200	12.96	2	0	6.2208	2016	Q3
135	Office Supplies	Fasteners	Brites Rubber Bands, 1 1/2 oz. Box	3.96	2	0	0.0792000000000002	2016	Q3
602	Office Supplies	Art	Quartet Omega Colored Chalk, 12/Pack	11.68	2	0	5.4896	2015	Q3
782	Office Supplies	Supplies	Elite 5" Scissors	16.9	2	0	5.07	2015	Q3
301	Office Supplies	Supplies	Serrated Blade or Curved Handle Hand Letter Openers	6.28	2	0	0.0628000000000002	2014	Q4
646	Office Supplies	Supplies	Premier Automatic Letter Opener	480.74	2	0	14.4222	2014	Q4
142	Office Supplies	Storage	Eldon Portable Mobile Manager	141.4	5	0	38.178	2014	Q4
482	Office Supplies	Paper	Snap-A-Way Black Print Carbonless Ruled Speed Letter, Triplicate	113.82	3	0	53.4954	2015	Q4
561	Office Supplies	Fasteners	Stockwell Push Pins	15.26	7	0	5.0358	2016	Q4
998	Office Supplies	Appliances	Holmes 99% HEPA Air Purifier	43.32	2	0	14.2956	2016	Q4
725	Office Supplies	Paper	Xerox 1892	116.28	3	0	56.9772	2016	Q4

# DATA TRANSFORMATION AND CHALLENGES

## Data Transformation:

- o Modeling for Analysis: Split raw data into manageable tables (e.g., region-wise, category-wise) and created relationships to maintain integrity.
- o Calculated Metrics: Added derived columns for KPIs like average order value and sales growth percentage.
- o Aggregations: Grouped data by regions, years, and customer segments to enable dynamic reporting.

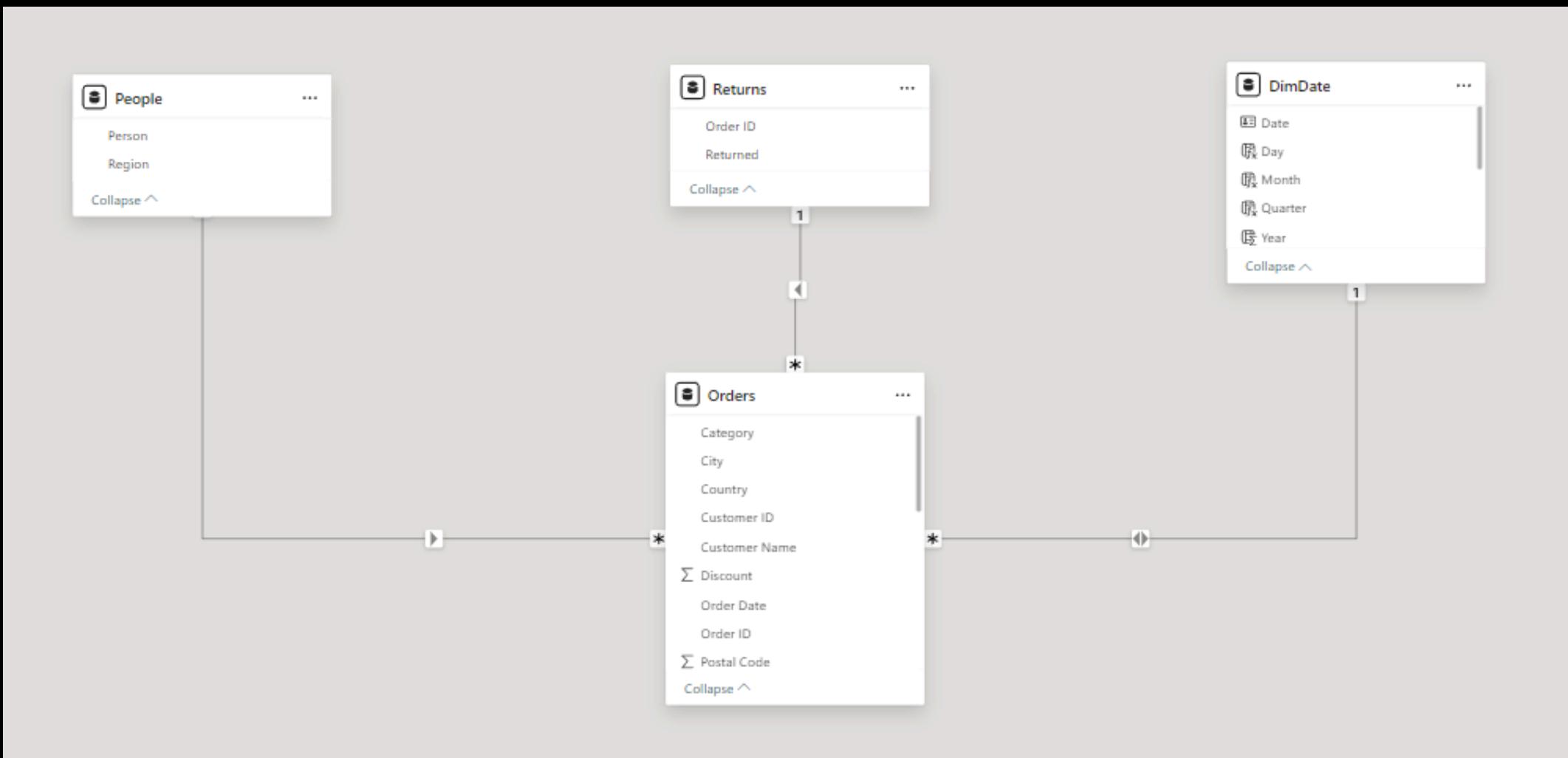
## Challenges and Resolutions:

- Inconsistent Data Formats: Resolved by defining custom transformations for formatting issues.
- Handling Outliers: Reviewed and flagged extreme values (e.g., unusually high order amounts) to validate data accuracy.
- Data Integration: Combined multiple sources using unique keys and merged tables seamlessly through Power Query.

This meticulous approach ensured clean, structured data ready for analysis and visualization in Power BI.

# DATA MODELLING

## TABLES:



### Orders Table:

Stores transactional data, including Order Date, Customer ID, Category, City, and sales-related metrics like Discount.

### DimDate Table:

A date dimension that includes attributes like Day Number, Month, and Is Weekend

### People Table

Contains employee or personnel information (columns not fully described)

### Returns Table:

Tracks returned products, potentially including Order ID and Return Reason

# MEASURES

```
1 Average Discount = AVERAGE(Orders[Discount])
```

## AGGREGATION:

- AVERAGE provides the central tendency or mean of the data.
- SUM gives the cumulative value for a specific field.
- MIN and MAX are used for identifying boundaries in data (smallest and largest values)

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

```
1 Max Sales = MAX(Orders[Sales])
```

```
1 Min Sales = MIN(Orders[Sales])
```

# MEASURES

```
dateinperiodsss = DIVIDE(CALCULATE(SUM('Company Orders'[Sales]),DATESINPERIOD(DimDate[Date].[Date],LASTDATE('Company Orders'[Order Date]),-3,Day)),3,"NA")
```

```
prevMonth = CALCULATE(sum('Company Orders'[Sales]),PREVIOUSMONTH(DimDate[Date].[Date]))
```

```
prevday = CALCULATE(sum('Company Orders'[Sales]),PREVIOUSDAY(DimDate[Date].[Date]))
```

```
1 samePeriLastYear = CALCULATE(SUM('Company Orders'[Sales]),SAMEPERIODLASTYEAR(DimDate[Date].[Date]))
```

## 3. PREVIOUSDAY

- Definition: Returns a table containing the dates for the previous day, based on the context of the provided date column.

## 4. SAMEPERIODLASTYEAR

- Definition: Returns a table containing the same dates from the previous year, based on the context of the provided date.

## TIME INTELLIGENCE:

### 1. DATESINPERIOD

- Definition: Returns a table containing a set of dates within a specific period, starting from a given date.

### 2. PREVIOUSMONTH

- Definition: Returns a table containing all the dates from the previous month, based on the context of the provided date column.

# MEASURES

```
1 AOV_Order =
2 DIVIDE(
3     [Total Sales],
4     COUNTROWS(Orders),
5     0
6 )
```

```
1 AOV_Cust =
2 DIVIDE(
3     [Total Sales],
4     DISTINCTCOUNT(Orders[Customer ID]),
5     0
6 )
7
```

```
1 Sales Growth % =
2 IF(
3     ISBLANK([Sales Previous Year]),
4     BLANK(),
5     DIVIDE(
6         [Total Sales] - [Sales Previous Year],
7         [Sales Previous Year],
8         0
9     )
10 )
```

## DAX CALCULATION:

The majorly used DAX measures are attach in this slide , The measure like

1. **Average order value (AOV) per order**
2. **Average order value (AOV) per customer**
3. **Sales Growth % over year**
4. **Customer lifetime value**

```
1 Customer Lifetime Value =
2 [AOV_Cust] * [AOV_Cust]
```

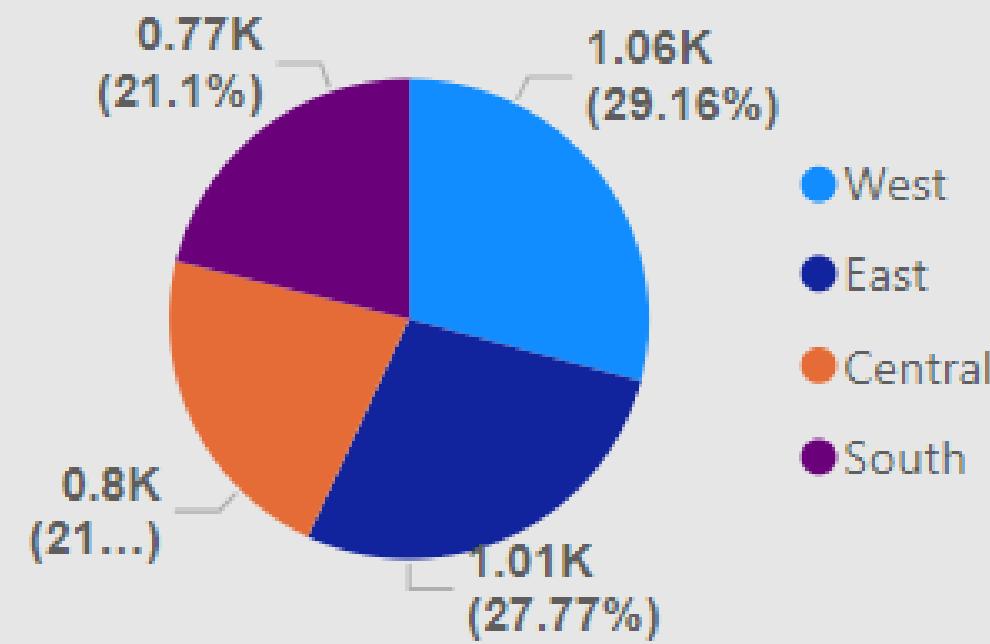
8.39M

Customer Lifetime Value

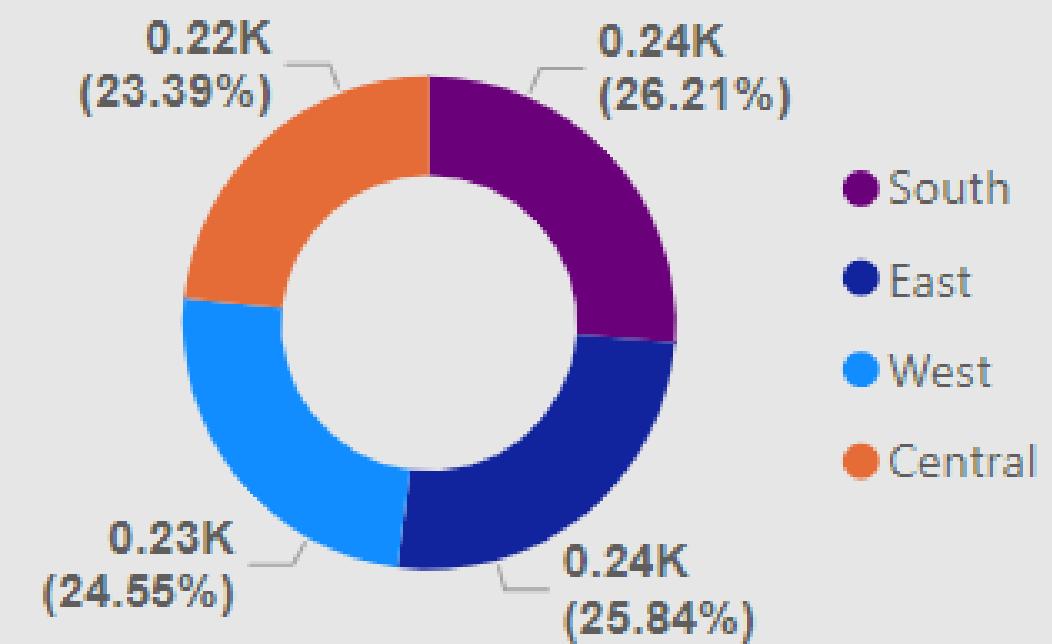
# REGIONAL SALES & ORDER VALUE

Average Order Value per Customer and Order for regions like West, East, Central, and South.

**Region wise Average Order Value per Customer**



**Region wise Average Order Value per Orders**



## PIE and DONUT VISUAL:

Pie charts provide a proportional view of average order value across regions, focusing on both customers and orders.

Similar to a pie chart but with a hollow center, making it visually cleaner and allowing space for a label or additional information in the middle.

## INSIGHTS:

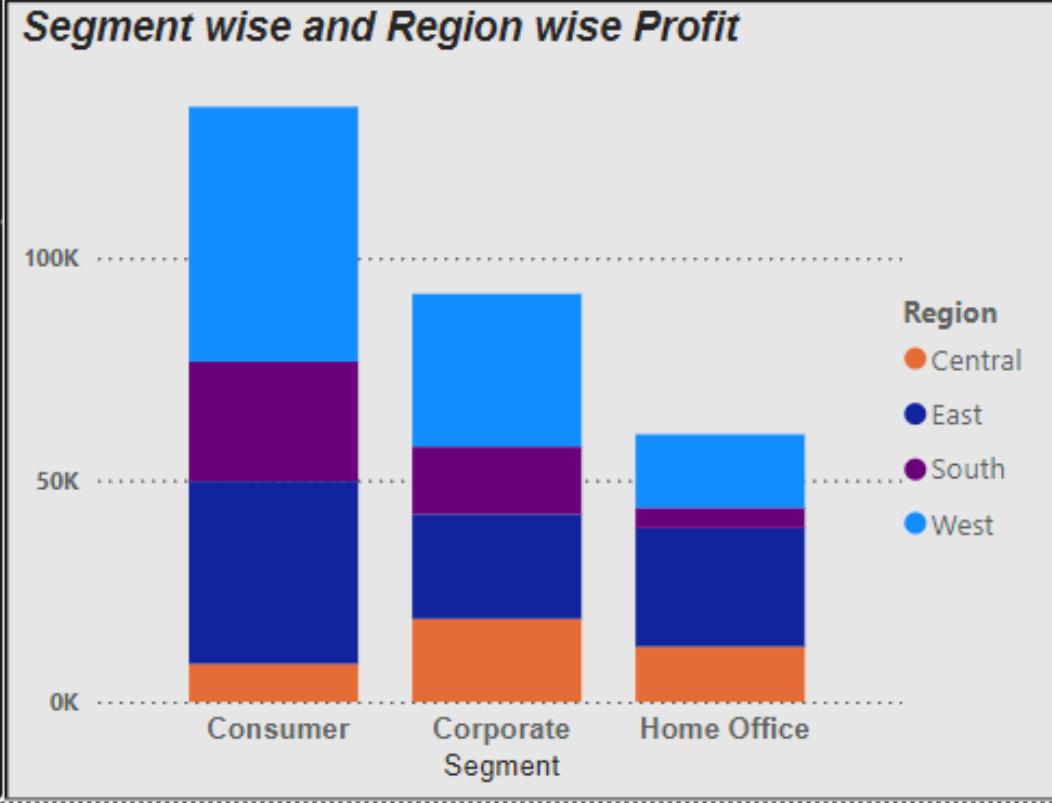
Highest order values are in the East and South.

West has the lowest average but may have a higher customer count.

The chart shows the "Region wise Average Order Value per Orders," with the South region having the highest average order value, followed closely by the East region.

# PROFIT,SALES BY SEGMENT AND REGION

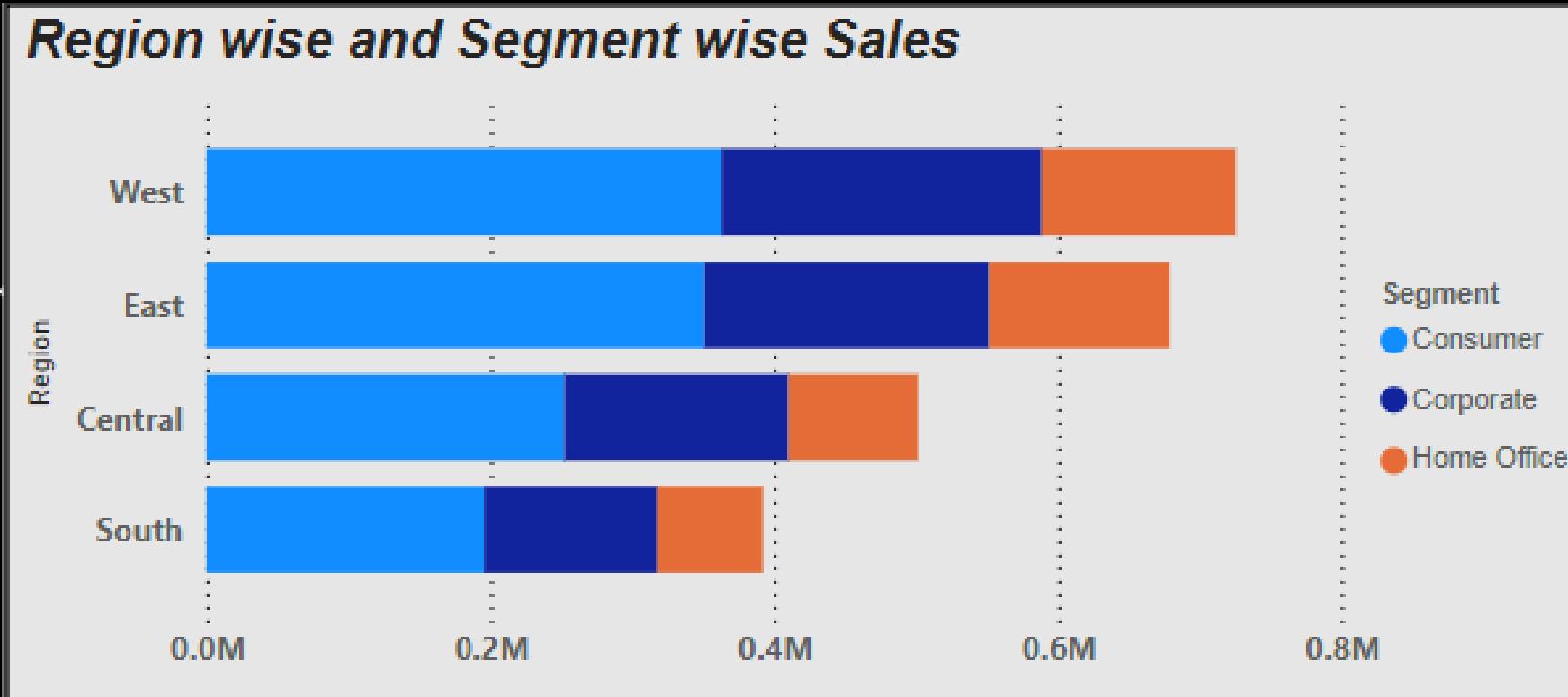
Analyzing Profit and Sales trend for Consumer, Corporate, and Home Office segments and regions like East, West, Central and South.



## STACKED COLUMN CHART AND STACKED BAR CHART:

Stacked column charts use vertical bars, with segments representing subcategories stacked on top of each other.

Stacked bar charts display data using horizontal bars, where each bar is divided into segments representing subcategories.



## INSIGHTS:

West Region has the highest total sales, with a significant contribution from the Consumer segment.

The Consumer segment contributes the highest profit across all regions, with the West and East regions leading in profitability.

# USEAGE OF SLICERS AND CARDS

Total sales and Total profit based on Year , Region & Category

2.30M

*Total Sales*

286.40K

*Total Profit*

The dashboard features three large cards on the left side. The first card displays '2.30M' with the label 'Total Sales' below it. The second card displays '286.40K' with the label 'Total Profit' below it. Both labels are in a blue and gold font. To the right of these cards are three slicer panes. The first slicer, titled 'Year', includes checkboxes for 2014, 2015, 2016, and 2017. The second slicer, titled 'Region', includes checkboxes for Central, East, South, and West. The third slicer, titled 'Category', includes checkboxes for Furniture, Office Supplies, and Technology.

## CARDS AND SLICERS :

Cards are used to highlight key metrics like Total Sales (\$2.3M) and Total Profit (\$286.4K) for a quick overview.

Enables filtering by geographical regions (Central, East, South, West)

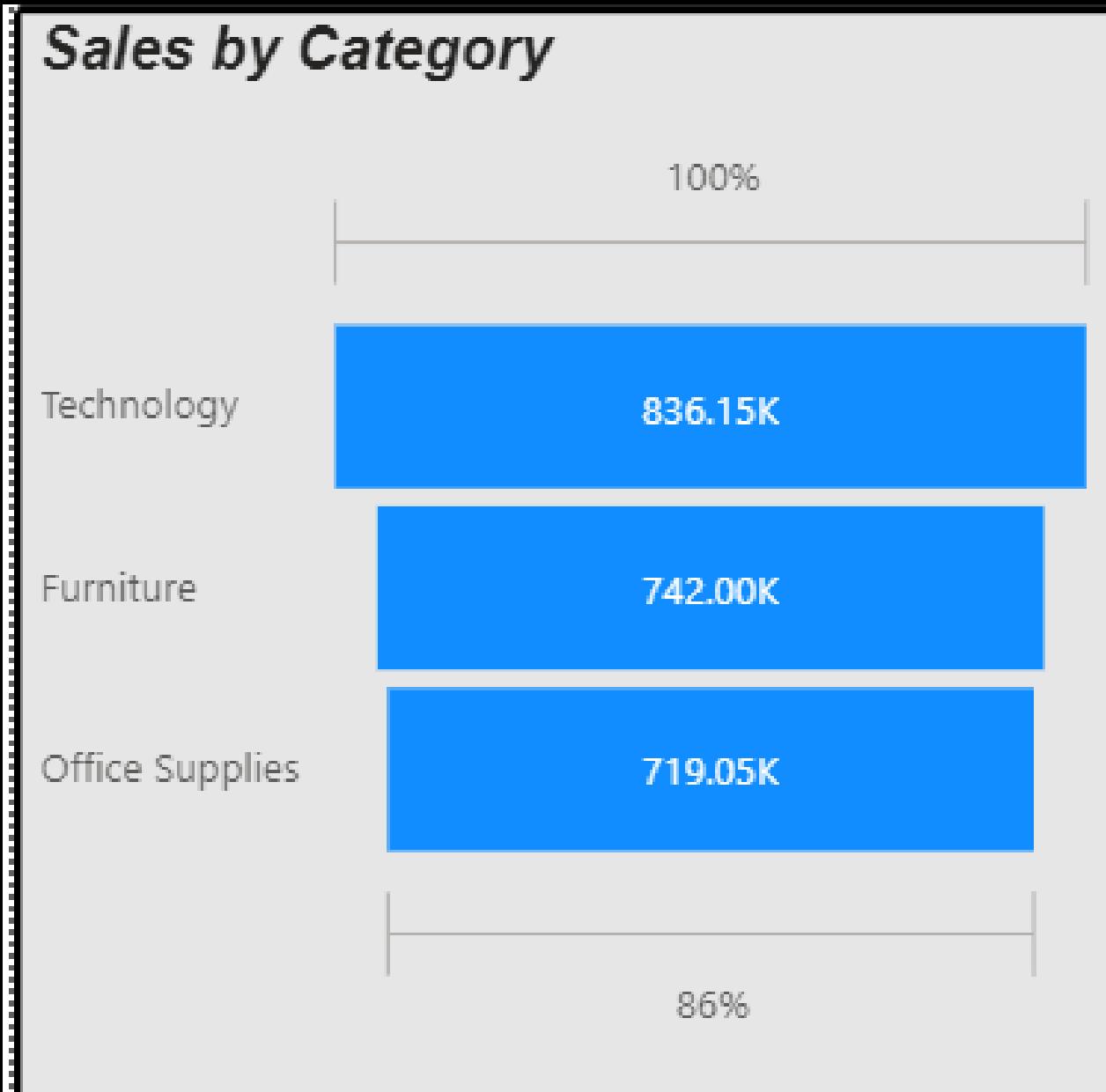
## INSIGHTS:

Total Sales and Profit provide a snapshot of business performance. These numbers serve as benchmarks for evaluating trends and profitability.

Most profitable and least profitable regions

# SALES BY CATEGORY

Sales performance for Technology, Furniture, and Office Supplies.



## FUNNEL VISUAL:

The funnel visual is likely used to represent a step-by-step process or hierarchical breakdown of metrics.

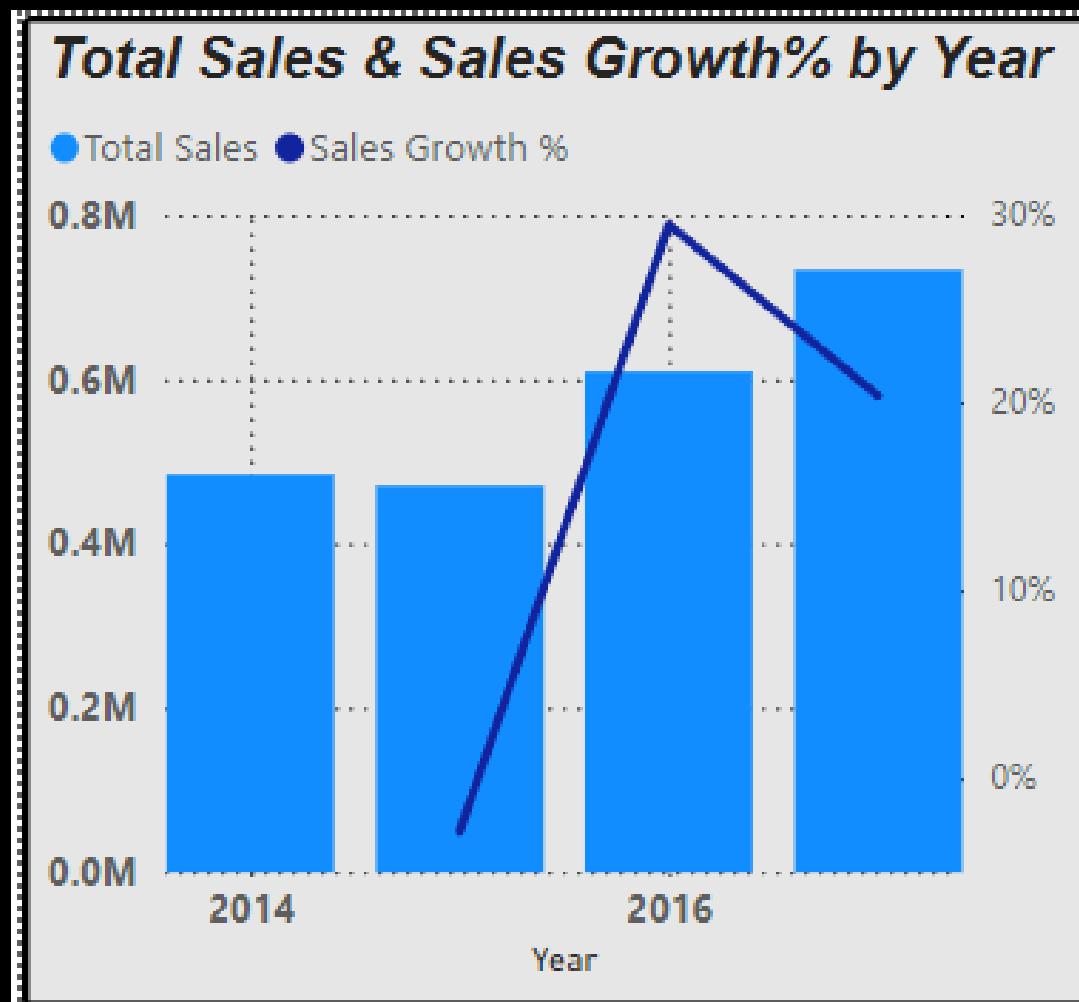
## INSIGHTS:

Analyze how many customers, orders, or sales are retained at each stage.

Identify stages with significant drop-offs to optimize processes.

# SALES GROWTH BY YEAR

Sales performance for Technology, Furniture, and Office Supplies.



## STACKED COLUMN CHART AND STACKED BAR CHART:

A Line and Stacked Column Chart combines stacked columns with a line chart in a single visualization.

It is used to compare individual components (stacked values) and simultaneously visualize trends or metrics over time or categories (using the line).

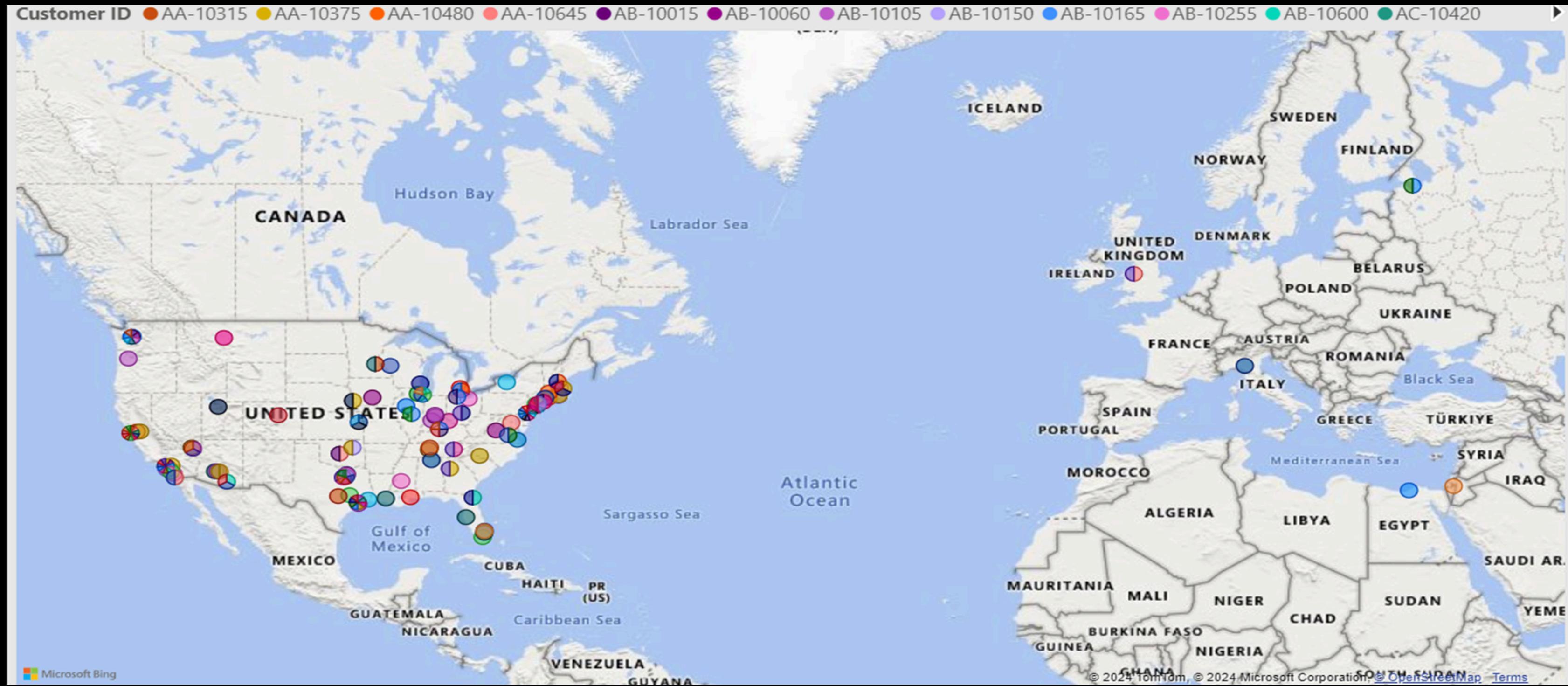
## INSIGHTS:

2017 has the highest sales

Line graph shows increase in sales growth after 2015 and decrease in sales after 2016

# GEOGRAPHIC DISTRIBUTION

- A map visual gives a clear understanding of where customers are concentrated
- Most customers are located in North America, with some presence in Europe and Africa. This helps in identifying potential regions for expansion or targeted marketing.





# THANK YOU