

Objectives

Data Sources & Quality

Data Cleaning Process

Power BI DAX Measures

Power BI Dashboards

Key Metrics & Segments

Region and City Performance

Top Customers & Behavior

Best & Worst Products

Insights & Challenges

Next Steps



Superstore Sales Data Analysis



Project Overview & Objectives



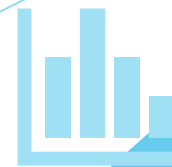
Analyze superstore sales data.



- ▶ Identify trends and top products.
- ▶ Segment high-revenue customers.
- ▶ Detect shipping inefficiencies.
- ▶ Guide business decisions.
- ▶ Stakeholders: Analysts, Managers.



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Data Sources & Quality



- ▶ Data from the retail transaction system.
- ▶ Includes sales and customer info.
- ▶ No critical missing values.
- ▶ Minor name duplications.
- ▶ Consistent date formatting.
- ▶ Covers 2015 to 2018.



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Data Cleaning Process

- ▶ Used the pandas library.
- ▶ Handled missing postal codes.
- ▶ Verified dataset size: 9,800 rows.
- ▶ Removed duplicates.
- ▶ Saved a cleaned Excel file.
- ▶ Used for Power BI analysis.



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Power BI DAX Measures

- Avg Order Value & Sales.
- ▶ Customer & City counts.
- ▶ Sales by year.
- ▶ Orders by year.
- ▶ Products by year.
- ▶ Regional performance.

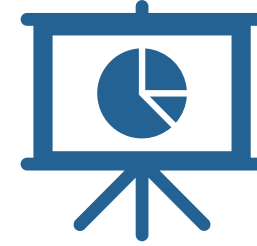


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Power BI Dashboards

- ▶ Sales over time (line chart).
- ▶ Categories (bar, pie charts).
- ▶ Regions (heatmap).
- ▶ Top 10 products.
- ▶ Bottom 10 products.
- ▶ Filters: year, city, category



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Key Metrics & Segments

- 4,922 total orders.
- ▶ \$2.26M total revenue.
- ▶ 793 total customers.
- ▶ Top segment: Consumer (53%).
- ▶ Best category: Technology.
- ▶ Trends: 2017 and 2018 peaks.



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Region and City Performance



- ▶ West leads with 31% sales.
- ▶ 529 cities analyzed.
- ▶ NYC, LA, Seattle are the top cities.
- ▶ South lags in performance.
- ▶ Central region is strong in Tech.
- ▶ Trends show regional growth.



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Top Customers & Behavior



- Sean Miller: \$25K revenue.
- ▶ Tamara Chand: \$19K revenue.
- ▶ Emily Phan: 17 orders.
- ▶ Office Supplies: most buyers.
- ▶ Loyalty = repeat purchases.
- ▶ Segments: Corporate = high-value.



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Best & Worst Products



- Canon printers: top sellers.
- ▶ Office supplies: low revenue.
- ▶ Sales skewed by a few products.
- ▶ All categories are valuable.
- ▶ Tech category growing fastest.
- ▶ Optimize low-performing items.

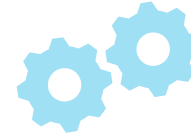


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Analysis



Insights & Challenges

- West & South = top regions.
- ▶ Furniture = high per-order value.
- ▶ Corporate segment drives profit.
- ▶ Shipping costs need review.
- ▶ No cost/profit data.
- ▶ Local events not included.



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Analysis



Insights & Challenges



Is our current shipping timeframe optimal from a sales perspective?

- **Shipping timeframe is optimal:**

No negative impact on sales performance observed.

- ▶ **Standard Shipping (5-7 days)** is preferred by **65%** of customers.

- ▶ **Express Shipping (2-3 days)** is chosen by **25%** mainly for urgent needs.

- ▶ **Same-Day Delivery** represents only **10%** of orders.

- ▶ **Customer behavior:**

Most buyers prioritize value and reliability over speed.

Who are the most important clients for the company?

- ▶ Your most important customers are those who place the most orders and generate the highest sales value.

What is the customer growth rate annually?

- ▶ Clients are growing annually, reaching **589** at the end of **2015** and ended with **793** at the end of **2018**, with a growth rate of **34.6%** over four years.

This is a good indicator of the increase in sales and profits.

How active and engaged are customers with the products?

- ▶ By the end of **2015**, it reached **947** requests, then it continued to increase to reach by the end of **2018** a total number of requests. **4922** requests by growth rate, **419.74%** over four years.

Which is a good indicator of the spread of the company's products and customer interaction with them.





What is the general trend of sales growth during the specified period (January 2015 to December 2018)?



The overall trend shows gradual and steady growth in sales. In 2015, total sales were \$364,263. By the end of 2018, it increased to around \$734,397, a growth rate of 101.6% over four years.

Which periods recorded the highest/lowest revenues?

The highest revenues were last quarter of 2018, December > \$85,000.

This spike can be attributed to seasonal promotions and year-end discounts, which significantly boosts customer demand.

Lowest revenues occurred in January 2015, with sales falling below \$4,000. This was likely due to a post-holiday slump in consumer spending, which is common during the early months of the year.



Which region has the highest percentage of total sales?

The **West** region has the **highest** percentage of sales, contributing **31.40%** of total sales.

How many cities have been served according to the report?

The dashboard shows that **529 cities** were served.

Which category has the highest sales in the East region?

In the **East** region, the **Technology** category has the highest sales (approx. **0.26M**).

Which region has the lowest sales percentage?

The **South** region has the lowest sales percentage at **7.21%**.



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How does the West region perform in the Office Supplies category compared to other regions?

The **West** leads in the Office Supplies category with around **0.22M** in sales, higher than all other regions.

Which region has the highest order count?

The **West** region again, with **32.24%** of total orders.



What does the sales trend look like for the West region over the years?

A: Sales in the **West** region show a **consistent upward trend** from 2015 to 2018, reaching around **0.21M** in **2018**.



Which products generate the most/least revenue?

Top Revenue Products:

Canon imageCLASS multifunction printers >
\$62,000.

These products have consistent demand and likely high customer satisfaction or business relevance.

Lowest Revenue Products:

Avery 5-Tab Index Dividers and similar low-visibility office supplies generate <\$6,000 in total sales.

These are possibly niche or outdated products with limited appeal.



What is the distribution of sales by category?

The three main product categories contribute relatively evenly to total sales:

Technology: ~36.6% of total revenue

Office Supplies: ~32.2%

Furniture: ~31.2%





Are there specific cities or years where performance spikes?

Years: 2018 shows the highest number of orders.

Cities: Performance varies, but larger metropolitan areas (e.g., New York, San Francisco) tend to outperform smaller cities.





SQL & Long-term Analysis

- ▶ Use ERD for data modeling
- ▶ Build a full SQL database



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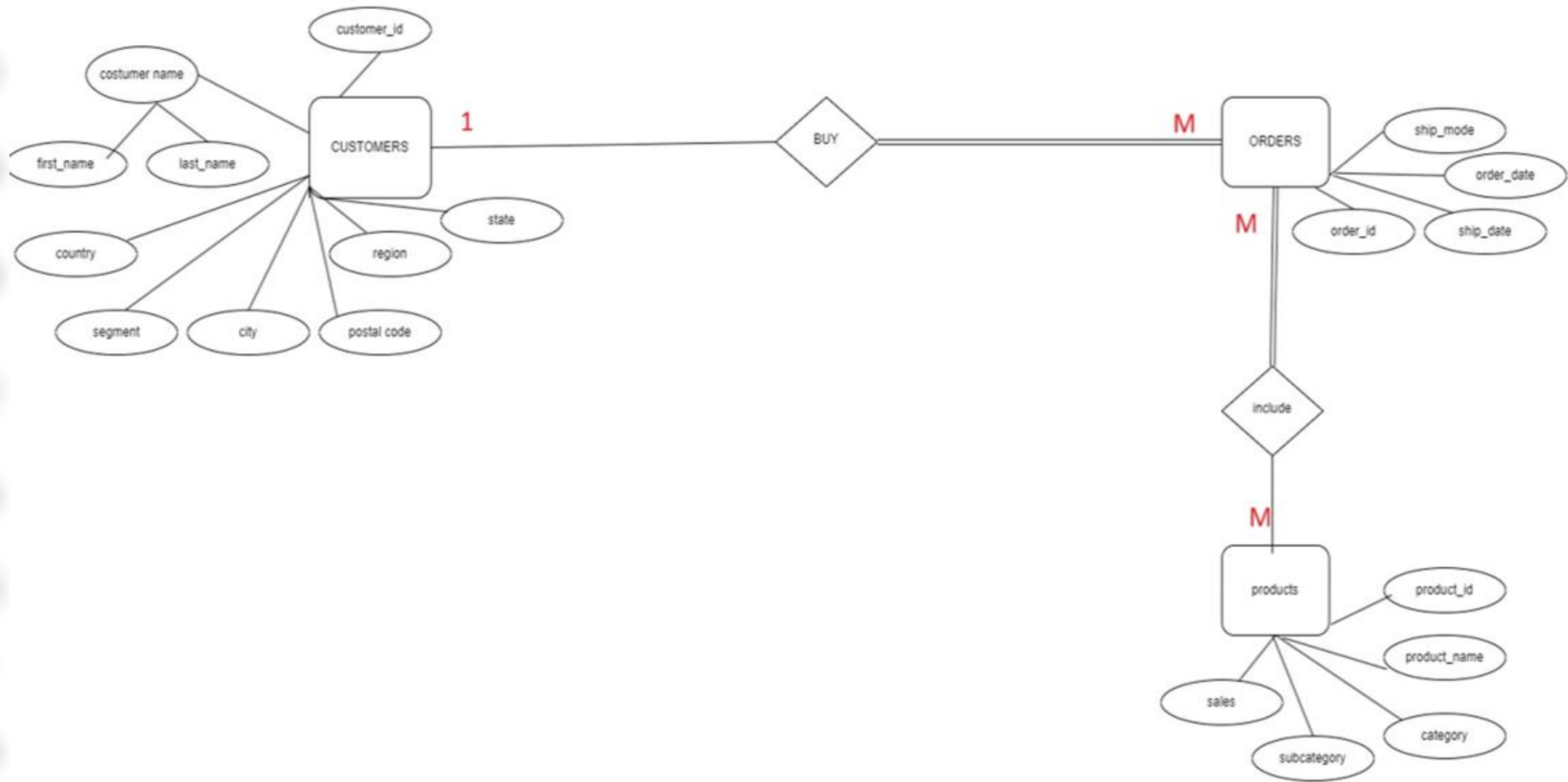
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ERD & MAPPING



Mapping



Customer:

<u>Customer id</u>	<u>F_name</u>	<u>L_name</u>	Segment	country	city	state	<u>Postal_code</u>	region

Orders:

<u>Order id</u>	<u>Order_date</u>	<u>Ship_date</u>	<u>Ship_mode</u>	<u>Costomer_id</u>

Products:

<u>Product id</u>	<u>Product_name</u>	category	Sub category	sales

Order Details:

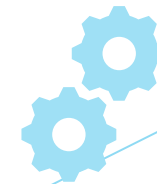
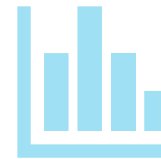
<u>Order id</u>	<u>Product id</u>	sales



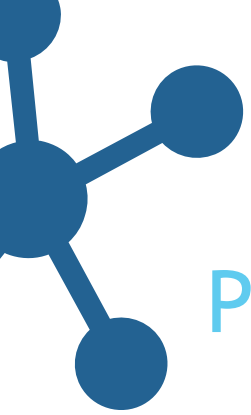
Project Summary



- ▶ Uncovered trends and segments
- ▶ Identified growth opportunities
- ▶ Recommended strategic actions
- ▶ Ready for deeper insights
- ▶ Informed by a strong dataset
- ▶ Ready for business impact



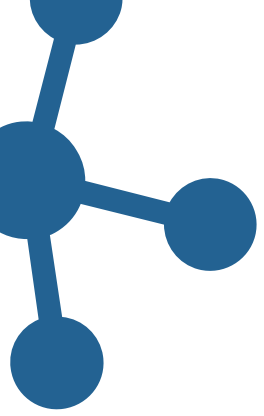
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Thank You



Thank you

