

# Sales Data Analysis Project – Bicycle & Accessories Company

## Introduction

This project is based on sales data from a **Bicycle & Accessories company**.

The main challenge is not only to calculate **sales KPIs** but also to:

- Detect **hidden problems** in the sales process.
- Analyze the **root causes** behind these problems.
- Provide **actionable recommendations** to improve performance.

## The dataset contains details about:

- Orders & Cancellations
- Customers
- Sales Representatives & Territories
- Products & Revenue Distribution

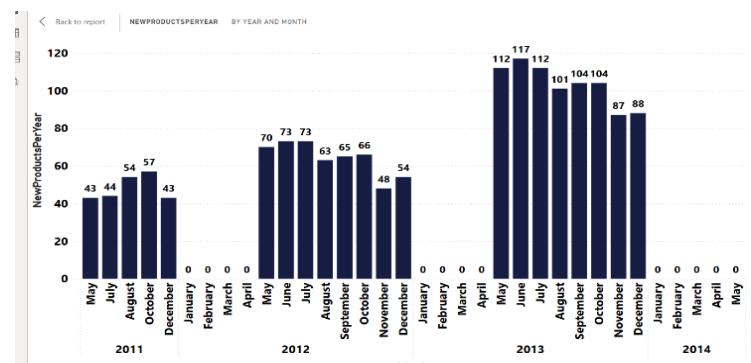
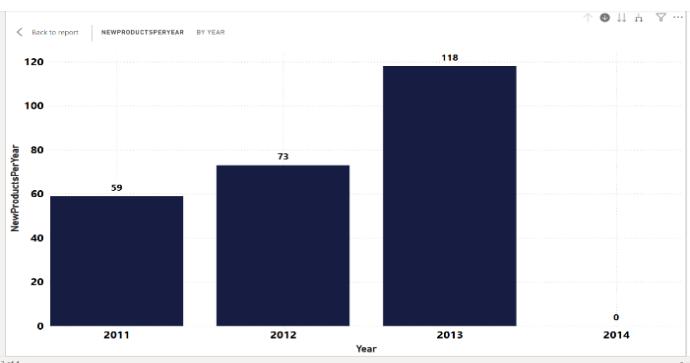
Through the dashboards, the company can clearly see their **KPIs**, track trends, and take informed actions to improve both **sales strategy** and **customer experience**.

## Data Overview

- The company sells ~**250 products**, organized into:
  - 33 Subcategories
  - 4 Main Categories
- Most products within the same **subcategory** differ only in **size or color**, so analysis focuses mainly on the Subcategory level.

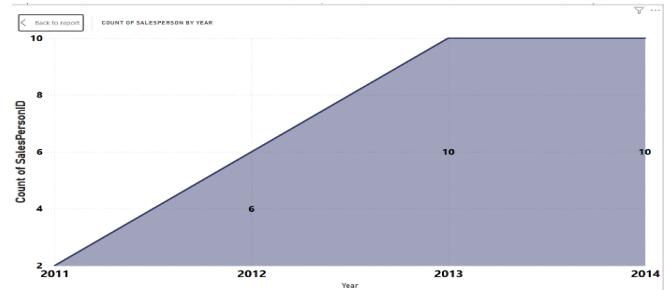
## Timeframe

- Data covers the period: June 2011 → May 2014
- Sales trend: Product sales increased year by year.
- Main reasons behind the growth:
  1. Increase in number of products:
    - New products are added every May.
    - Created a DAX measures:
      - 1- FirstYearSOld = calculate(min('Sales'[Year]), allexcept('sales', 'Sales'[ProductID]))
      - 2- IsNewProduct = IF (MAX ('Sales'[Year]) = [FirstYearSold], 1,0)
      - 3- NewProductsPerYear = SUMX(VALUES('Sales'[ProductID]), [IsNewProduct])



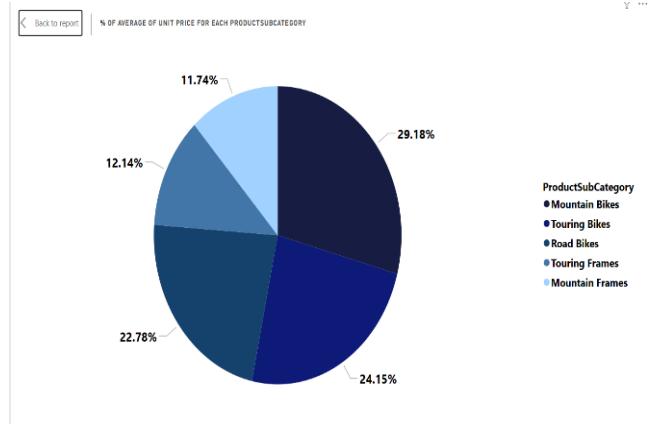
## 2. Increase in number of sales representatives (Sales Reps):

- 2011 → 2 reps
- 2012 → 6 reps
- 2013 & 2014 → 10 reps
- Visualized in a bar chart comparing sales reps count vs. sales per year.

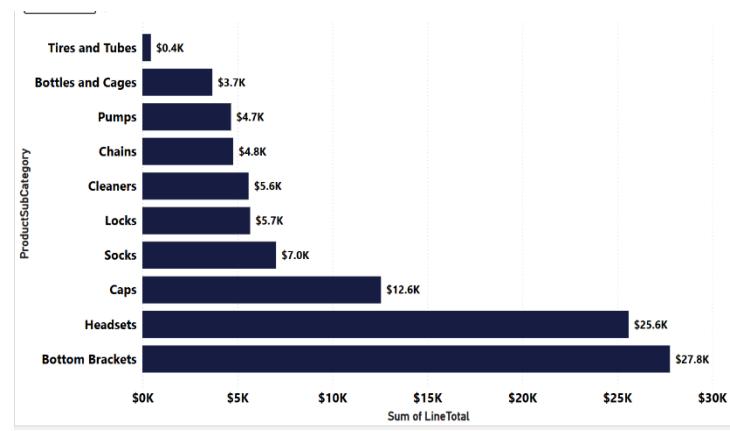
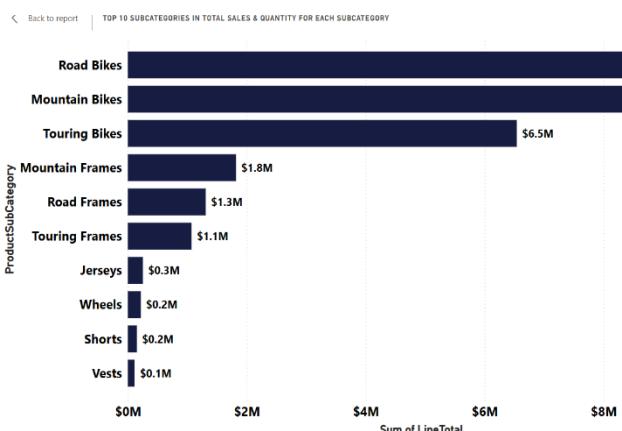


## Product Performance

- Top Selling Product Subcategory (by Sales Revenue):
  - **Road Bikes** → \$9.1M
- Lowest Selling Product Subcategory:
  - **Tires and Tubes** → \$0.4K
- Most Expensive Products:
  - **Mountain Bikes** (higher price range compared to other categories)



This shows a huge gap between high-performing and low-performing categories, highlighting potential focus areas for product strategy.



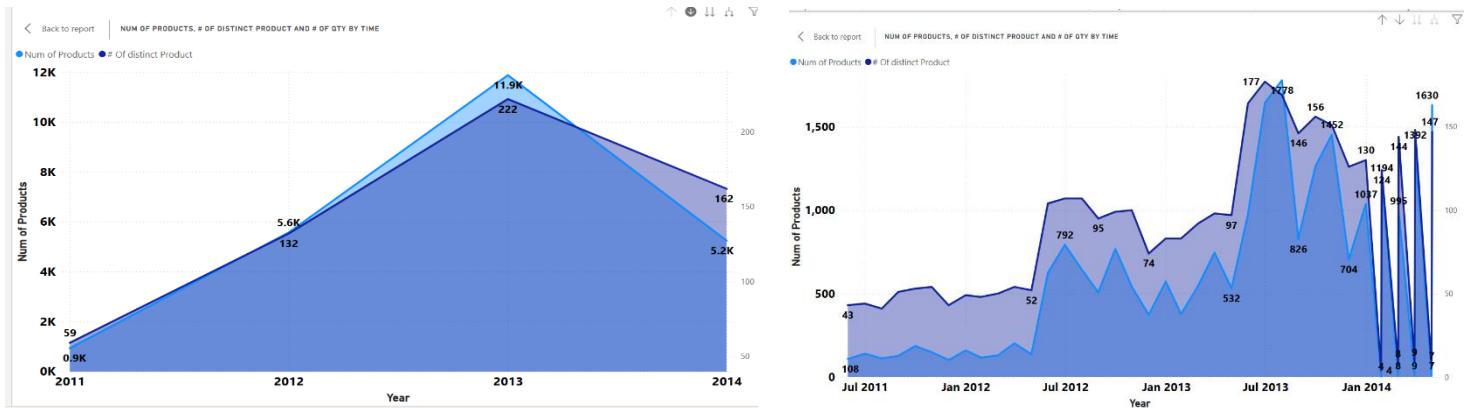
## Orders & Regional Insights

- **Total Orders:** 1,465 (June 2011 – May 2014)
- **Top Country by Orders & Revenue:** Canada
- **Total Sales** ≈ \$9.4M



## Sales Trend Analysis

- **2013:** Clear increase in sales compared to 2011 & 2012.
- **2014 (Feb & Apr):**
  - Sales values appeared as **0**, but further investigation showed:
    - Sales reps reported these orders on the **1st of the following month**, not within Feb or Apr.
    - Meaning the data issue was related to **reporting timing**, not an actual drop in demand.

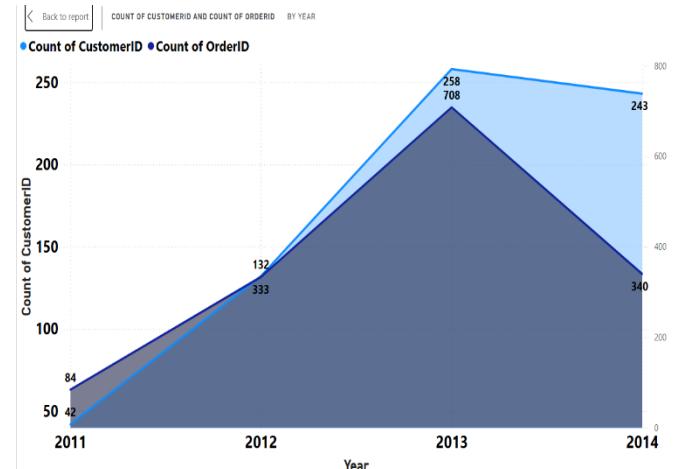
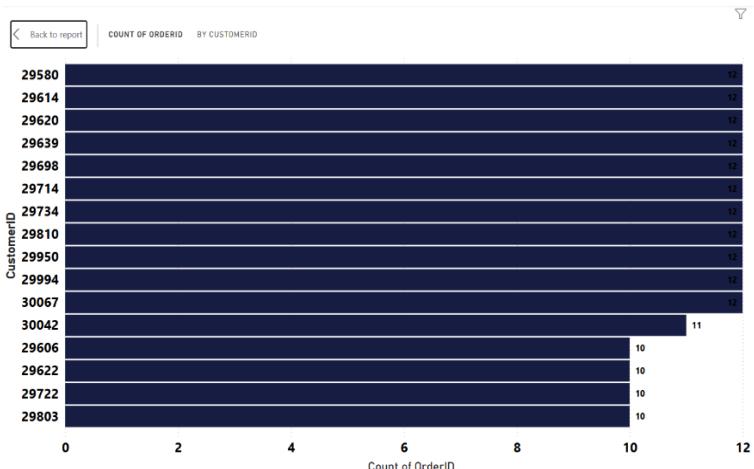


## Order Fulfillment Process

- After an order is reported → average **7 days** until shipping.
- After shipping → average **5 additional days** for delivery.
- Minimum delivery time: **~12 days**.
- In reality, the process can take **much longer**, depending on:
  - **When** the sales rep reports the order.
  - **Product availability** at the time of order.

## Customers Analysis

- The company's customers are mostly **individuals or small shops** (based on the small quantities ordered).
- Total number of unique customers: **294**.
- The **customer base doubled in 2013**, which was one of the key reasons for the sales increase.
- However, repeat purchases were very low → only **11 customers placed 12 repeat orders across the whole period**.



## Order Status Analysis

- Cancelled Orders: 10.9%
- Rejected Orders: 8.5%
- These are significantly high percentages and represent a major area for improvement.

## Customer Retention Rate (using DAX)

- Retention was calculated based on previous year's customers (not the new year).

- Formula created as a DAX measure

[Retention Rate (Prev Base) =

VAR CurrYear = SELECTEDVALUE('Sales'[Year])

VAR CustPrevYear =

```
CALCULATETABLE( VALUES('Sales'[CustomerID]), 'Sales'[Year] = CurrYear -  
1 )
```

VAR CustThisYear =

```
CALCULATETABLE( VALUES('Sales'[CustomerID]), 'Sales'[Year] = CurrYear )
```

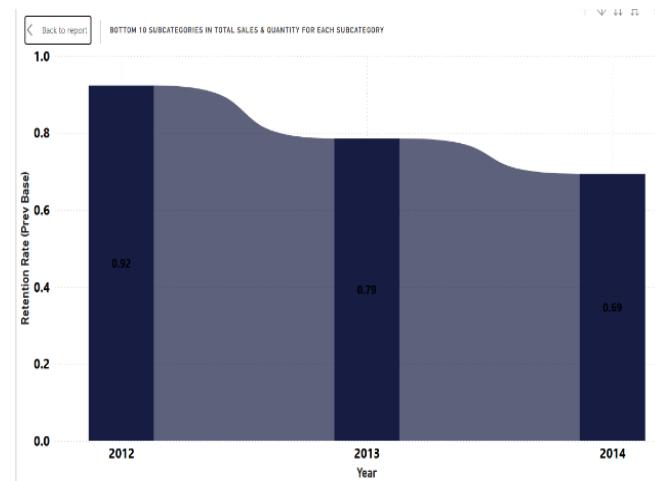
VAR Retained = COUNTROWS( INTERSECT( CustPrevYear, CustThisYear ) )

VAR PrevTotal = COUNTROWS( CustPrevYear )

RETURN DIVIDE( Retained, PrevTotal )]

- Results:

- **2012: 92%**
- **2013: 79%**
- **2014: 69%**



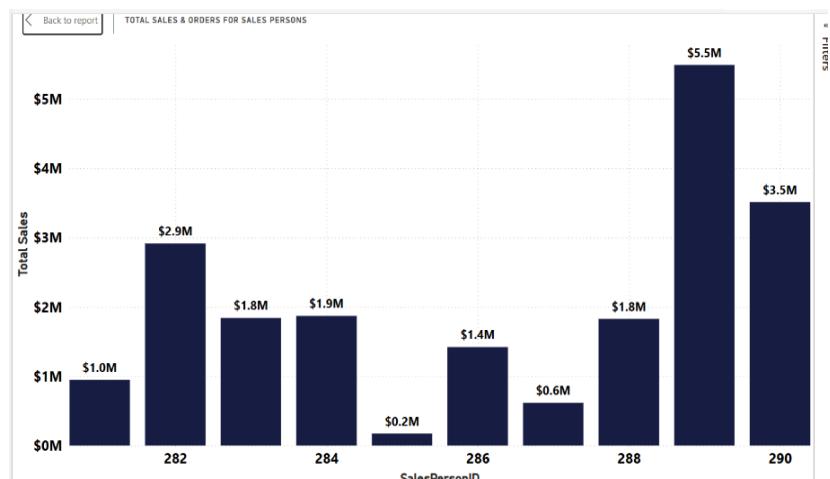
→ Although the number of customers is increasing, the retention rate is declining year over year.

## Salespersons Performance

- For fair comparison, we focused on **2013–2014**, since all salespersons were active during these years.

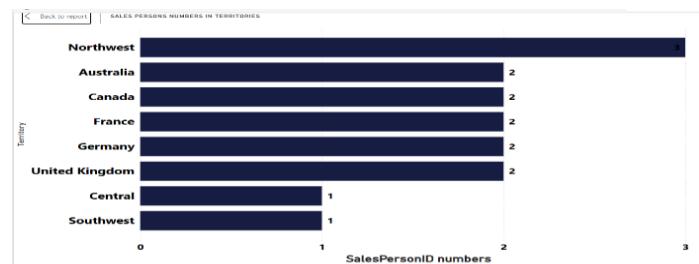
- **Best performer:** Salesperson #289 with **\$5.48M** in sales, a clear lead over the next highest.

- This salesperson operated in **Canada**, which was also the top-performing territory.



- Territory distribution of salespersons is uneven:

- Example: 3 reps in Northwest vs. 2 reps in Canada.
- However, Canada's high sales were mainly due to one top performer, not the number of salespersons.



- Product specialization:

- 6 out of 10 salespersons achieved their highest sales in **Road Bikes**.
- The rest performed best in **Mountain Bikes**.

## ## ✓ Recommendations

### 1. Order Processing Efficiency

- Currently, the order cycle can take **\*\*12+ days\*\*** (sales rep reporting → company processing → shipping → delivery).
- To reduce delays:
  - Implement a **real-time order management system**.
  - Set a **reporting cutoff** (e.g., last 3 days of the month) to avoid shifting sales into the next month.

### 2. Customer Retention Strategy

- Customer Retention Rate (CRR) is **decreasing yearly** (2012 → 92%, 2013 → 79%, 2014 → 69%).
- **Recommendations:**
  - Launch **loyalty programs** (discounts, exclusive offers for returning customers).
  - Offer **bulk purchase discounts** to encourage repeat orders.
  - Maintain active **customer follow-up & feedback collection**.

### 3. Customer Segmentation & Targeting

- Current customers are mainly **\*\*individuals and small shops\*\*** with relatively small orders.
- To maximize revenue and stability:
  - Focus more on **\*\*larger retailers and small businesses\*\*** instead of individuals.
  - Develop **\*\*B2B-focused packages\*\*** (volume-based pricing, long-term contracts).
  - Create tailored marketing strategies for **\*\*high-value customer segments\*\***.

#### **4. Product Portfolio Optimization**

- Sales growth between 2012–2013 was strongly driven by **new product introductions**.
- Continue adding new products annually, but also:
  - **Track low-performing products** (e.g., \*Tires and Tubes\*) for potential phase-out or marketing support.
  - Focus marketing efforts on **top sellers** (\*Road Bikes\*).

#### **5. Salesforce Management**

- Clear performance gap among sales reps (e.g., rep #289 outperformed peers by a wide margin).
- Recommendations:
  - Share **best practices** from top performers with others.
  - Provide **territory-based training** and performance incentives.
  - Balance sales rep distribution across regions to avoid dependency on single individuals.

#### **6. Order Cancellations & Rejections**

- High rates: **10.9% Cancelled and 8.5% Rejected**.
- Suggested actions:
  - Investigate **root causes** (inventory issues, late deliveries, pricing, etc.).
  - Improve **inventory forecasting & stock management**.
  - Enhance **communication with customers** to reduce rejections.