

# DATA ANALYTICS

TEAM 6 - SECTION BHINNEKA

Start Slide



# Our Great Team 6



**IZZAN**



**ALISSA**



**AZKA**



**DENDI**



**INNE**



**LINA**



**MUNNA**



**MUTIARA**



**PANDU**



**RAAFI**



**RESTY**



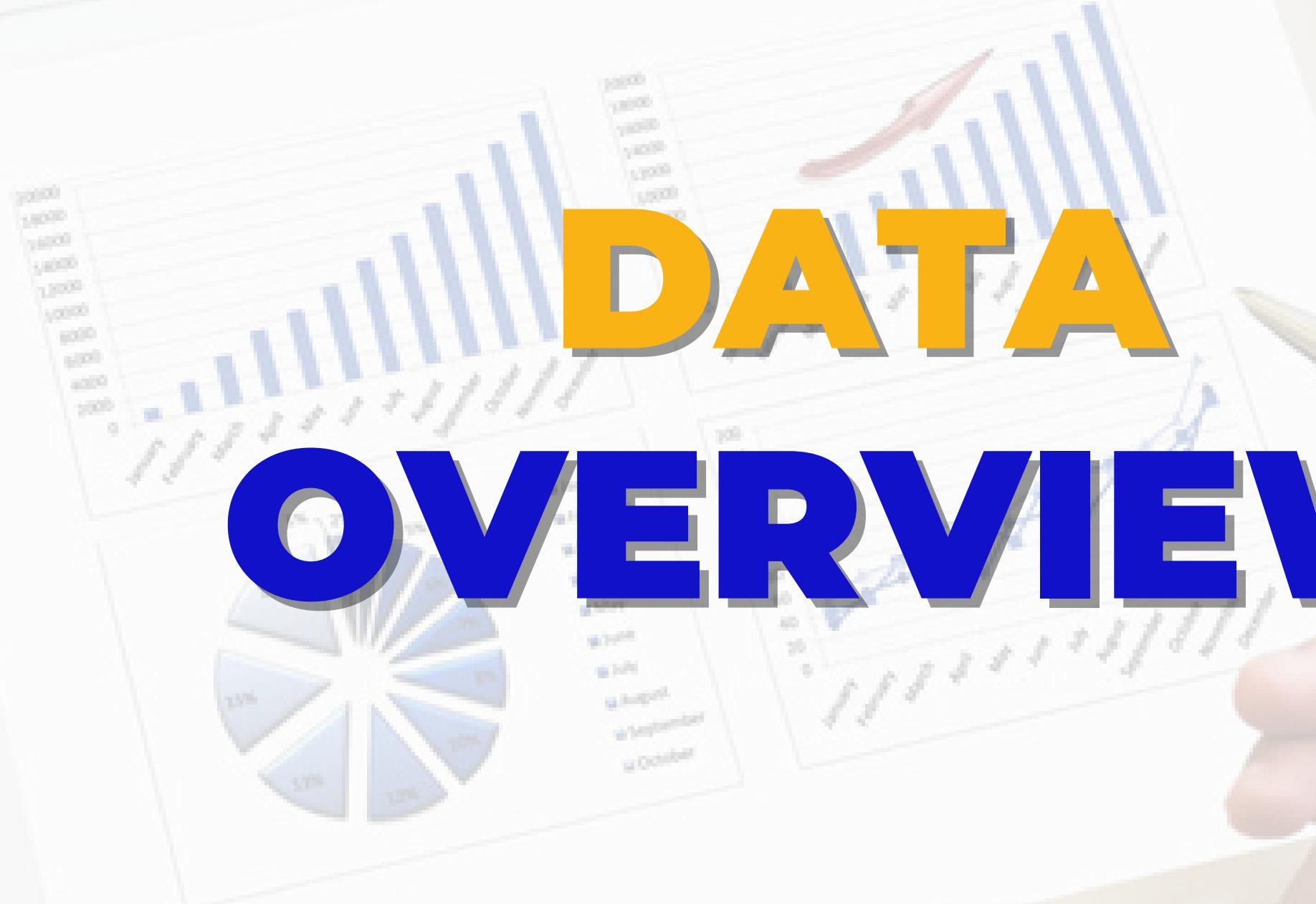
**RIMA**



**TIARA**



# DATA OVERVIEW



# Data Overview

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This dataset contains **23 attributes** and **8399 rows**.  
There are **5 numeric data types**, **2 date data types**, **10 text data types**, and **6 currency data types**.

<https://bit.ly/DatasetXYZStore>

Column, bar, and pie charts compare values in a single category, such as the number of products sold by each salesperson. Pie charts show each category's value as a percentage of the whole.

Participant	Units Sold
Andy	15
Chris	15
Daniel	9
Grace	12
Karen	21

Column Chart



Pie Chart



# BUSINESS OVERVIEW

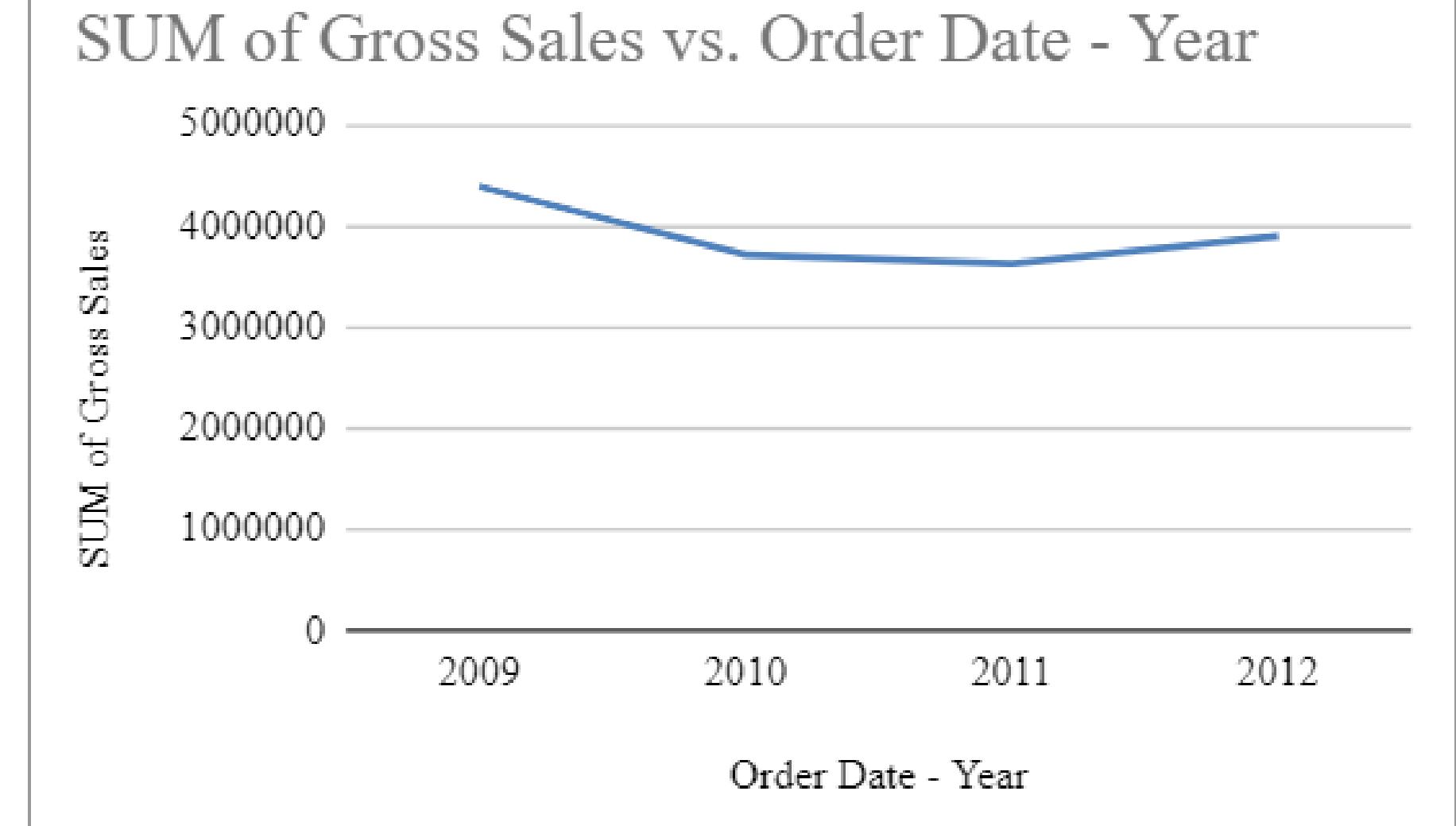


# Business Situation

**XYZ, Ltd. company** is a company that sells **3 categories** of products and distributes them to **13 provinces**.

**Sales performance** at XYZ, Ltd has been **decreased** for the last **three years** as we can see from the **gross sales** chart beside.

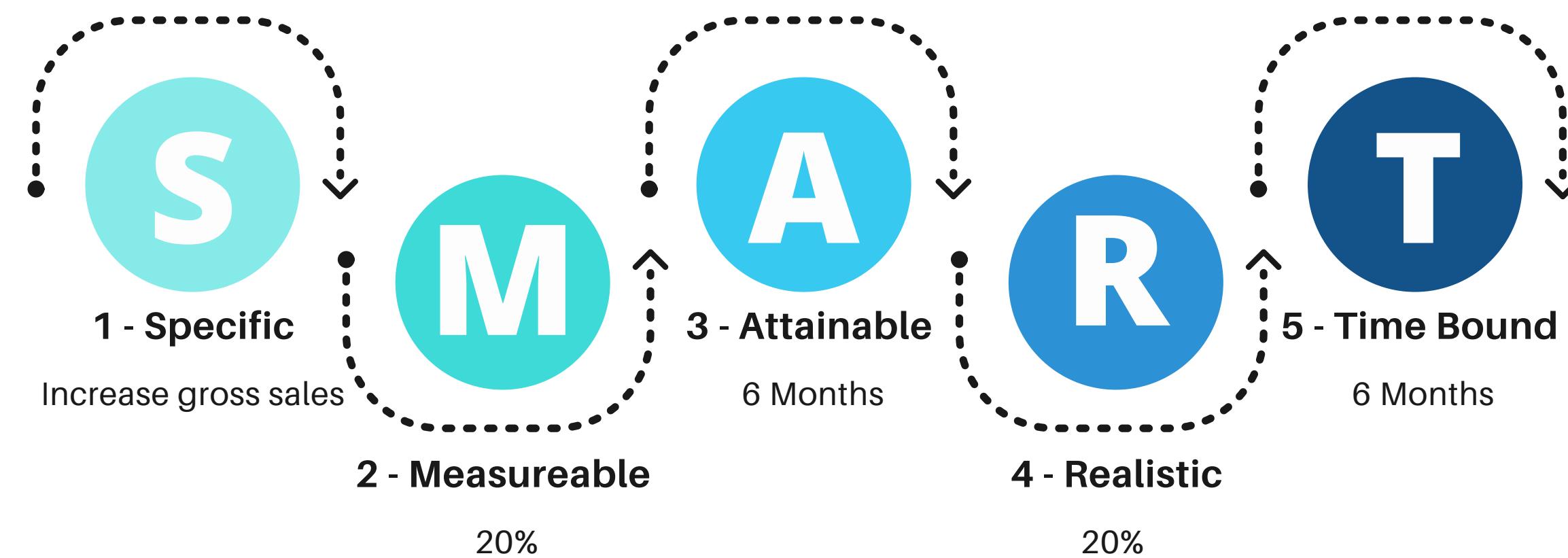
# About The Profit





# **PROBLEM DEFINITION & PLANNING**

# SMART



## Problem Statement

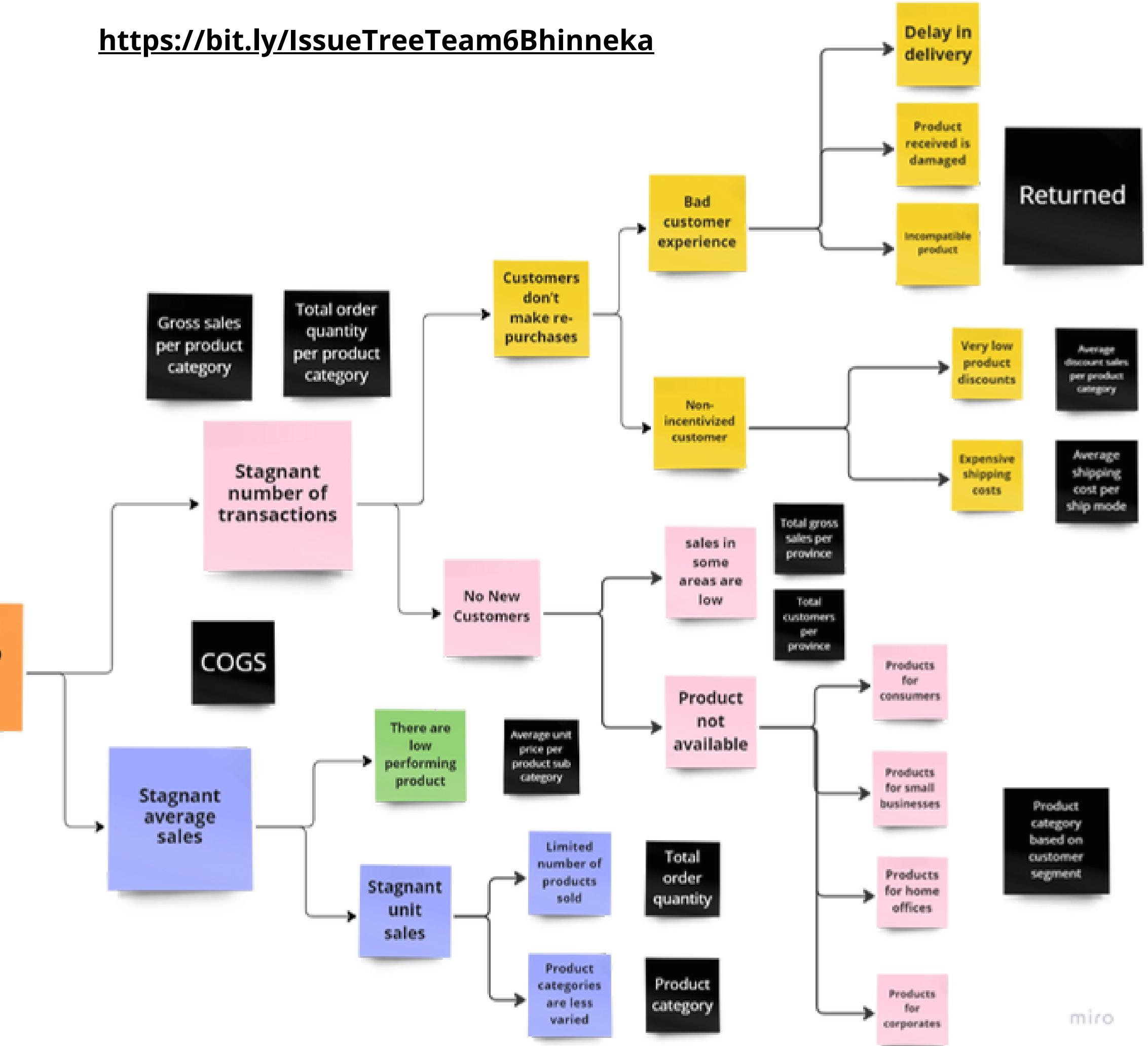
Increase Gross Sales 20% in 6 months

# ISSUE TREE

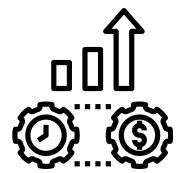
Gross sales

Why Gross sales decreased 16,4% each months in the last 3 years

<https://bit.ly/IssueTreeTeam6Bhinneka>



# METRICS



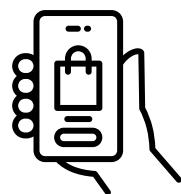
Total Gross sales per period



COGS per period



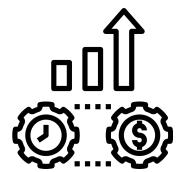
Gross sales per product category



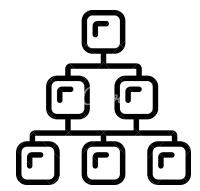
Total order quantity per product category



Total customers per provience



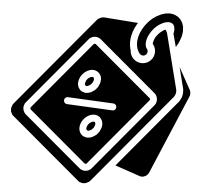
Total gross sales per provience



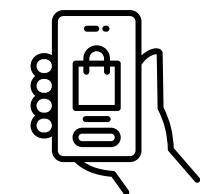
Product category based on customer segment



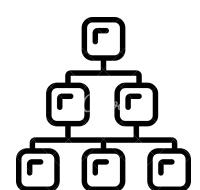
Average shipping cost of each ship mode



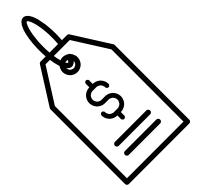
Average discount sales of each product category



Total order quantity



Product category



Average unit price of product sub category

# DATA CLEANING

<https://bit.ly/CleanDataTeam6Bhinneka>



# Data Cleaning Process

## Check irrelevant data, extra spaces & data type formatting

- Check irrelevant data in order id column,
- Check whitespace in all column,
- Check format data in all column.

## Handling structural error

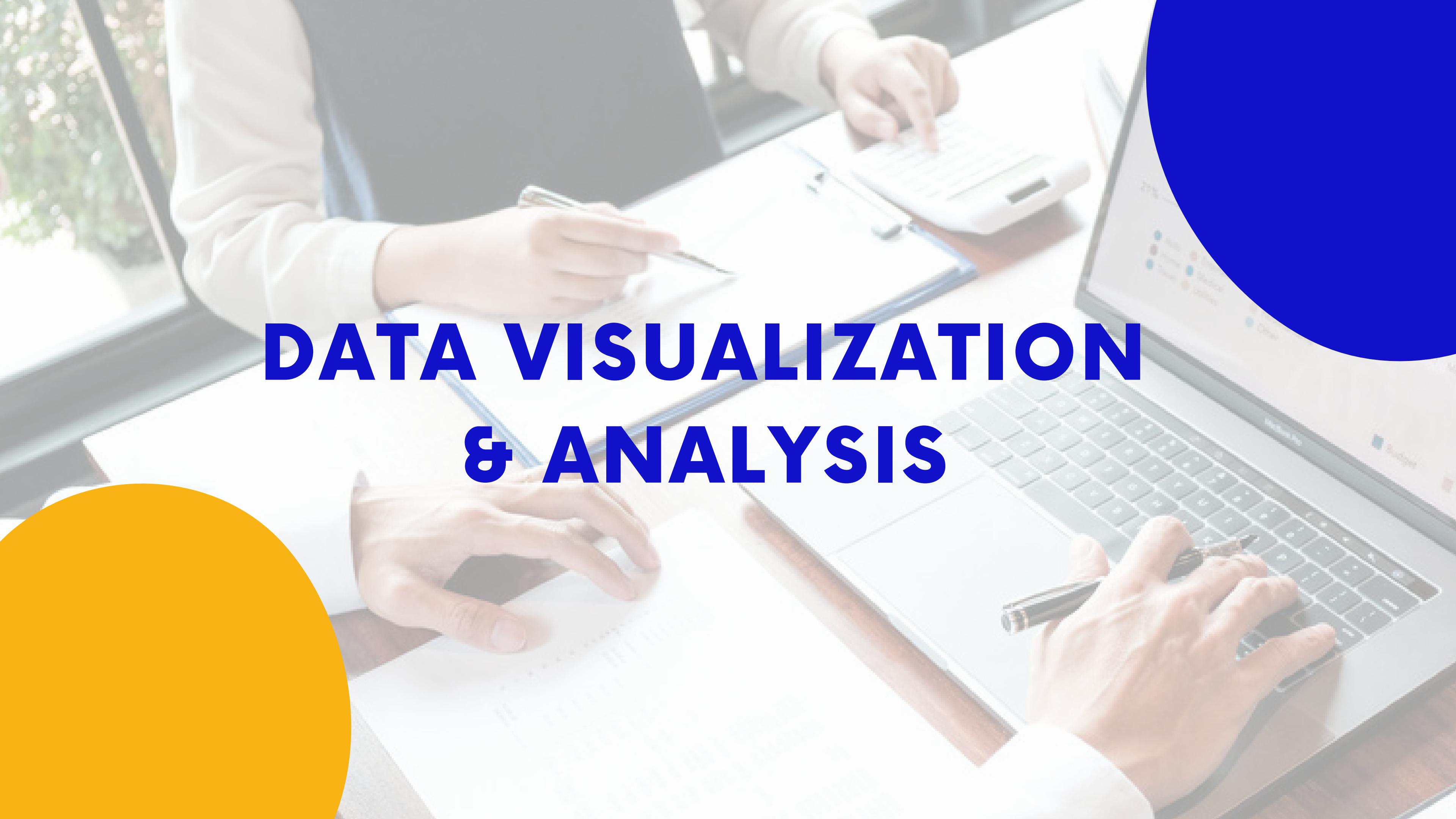
Ensure on gross sales, discounted sales, COGS, & profit using formula.

## Deal with missing data

Remove 63 missing data in product base margin (COGS) column because the missing data is relatively small.

## Filter out data outliers

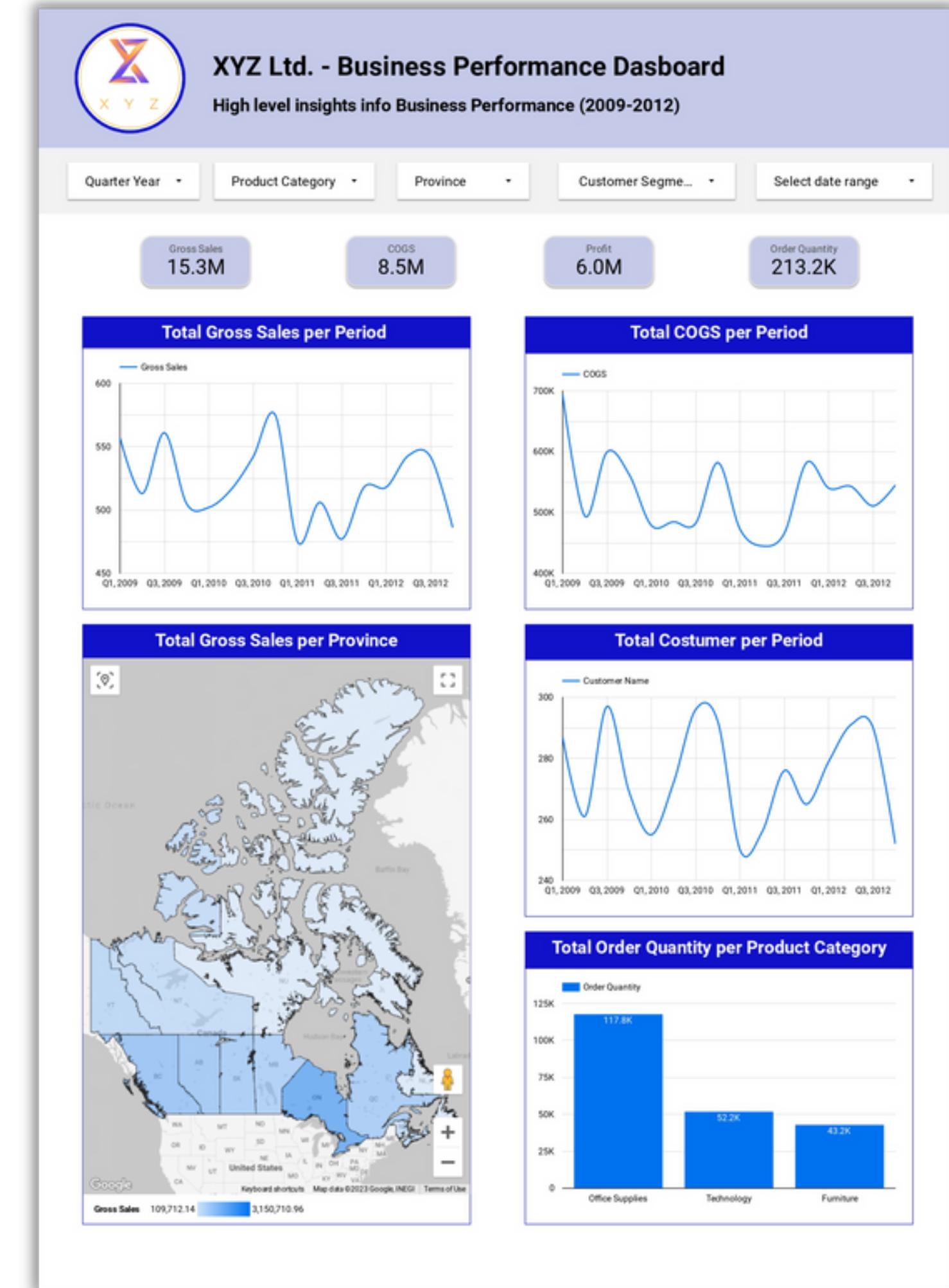
Using the interquartile range to create outlier in unit price, shipping cost, & product base margin column.



# **DATA VISUALIZATION & ANALYSIS**

# Our Dashboard

<https://bit.ly/DashboardTeam6Bhinneka>



## Total Gross Sales per Period

### Insight

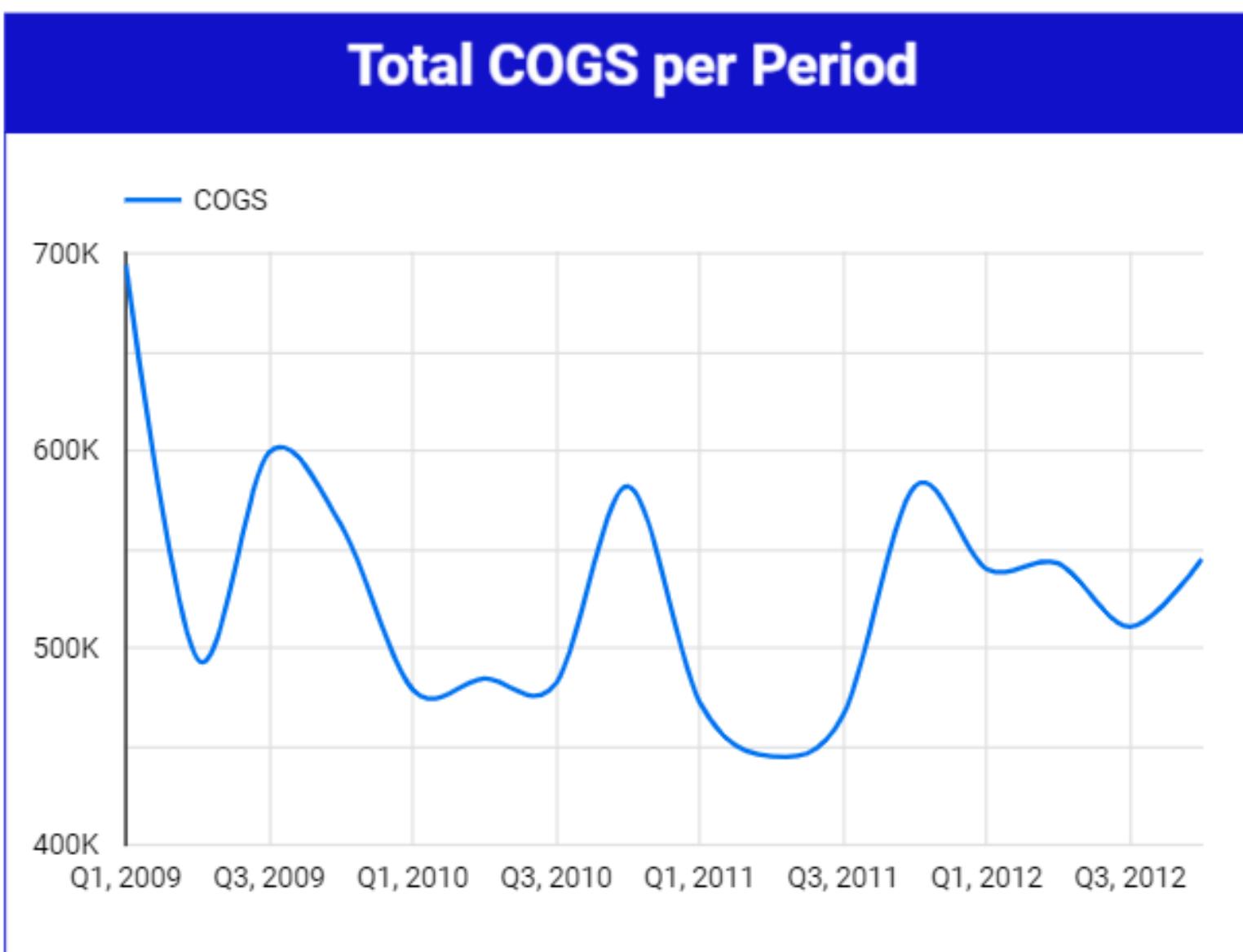
- Q4 2010 had the **highest** gross sales, while Q1 2011 has the **lowest**.
- **Fluctuations** occurred from Q1 2009 to Q4 2012.

### Recommendation

- **Identify the causes** of fluctuations, is it advisable to examine various factors, such as corporate events, product offerings, and marketing strategies.



## Total COGS per Period



### Insight

- Q1 2009 has the **highest** COGS from the period 2009 - 2012.
- Q2 2011 has the **lowest** COGS from the period 2009 - 2012.

### Recommendation

- Identifying the **causes of fluctuations** involves examining factors such as **raw material prices** and **total production** per period.
- Important to **pay attention** to the production raw materials in order to **maintain** the **quality** of the output and preserve **consumer trust**.

## Total Customer per Period

### Insight

- Q3 2009 has the **highest** customer from the period 2009 - 2012.
- Q1 2011 has the **lowest** customer from the period 2009 - 2012.

### Recommendation

- Offering some **discount promotions** to persuade customers.

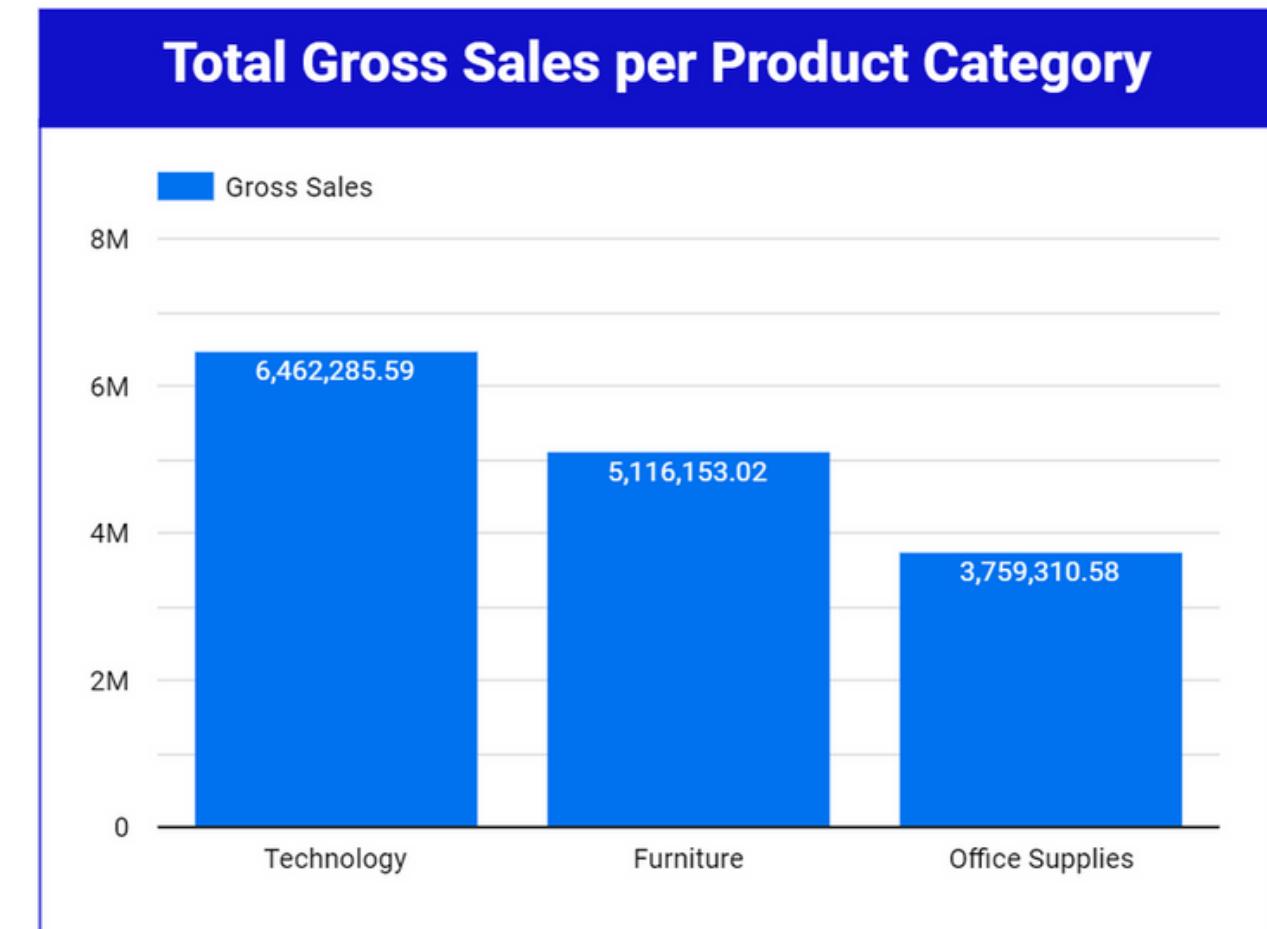
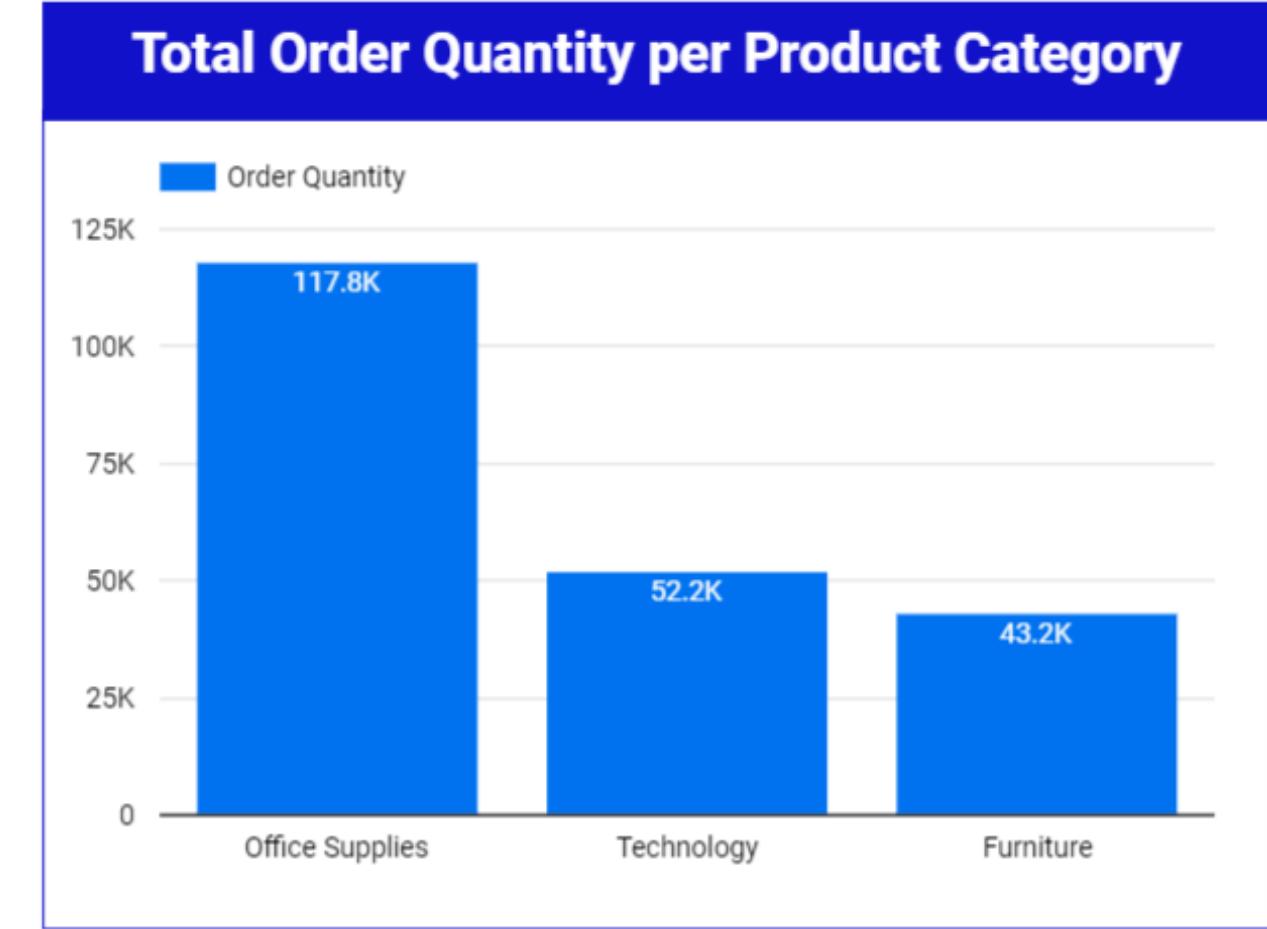


## Team 6 Section Bhinneka

### Total Order Quantity per Product Category & Total Gross Sales per Product Category

#### Insight

- Total **order quantity** for **Office Supply** is **higher** compared to Technology and Furniture.
- **Gross sales** per product for **Technology** is **higher** than Furniture and Office Supply.
- The total **order quantity** for **office supplies** is the **highest** per product category, **but it has the lowest total gross sales** per product category.

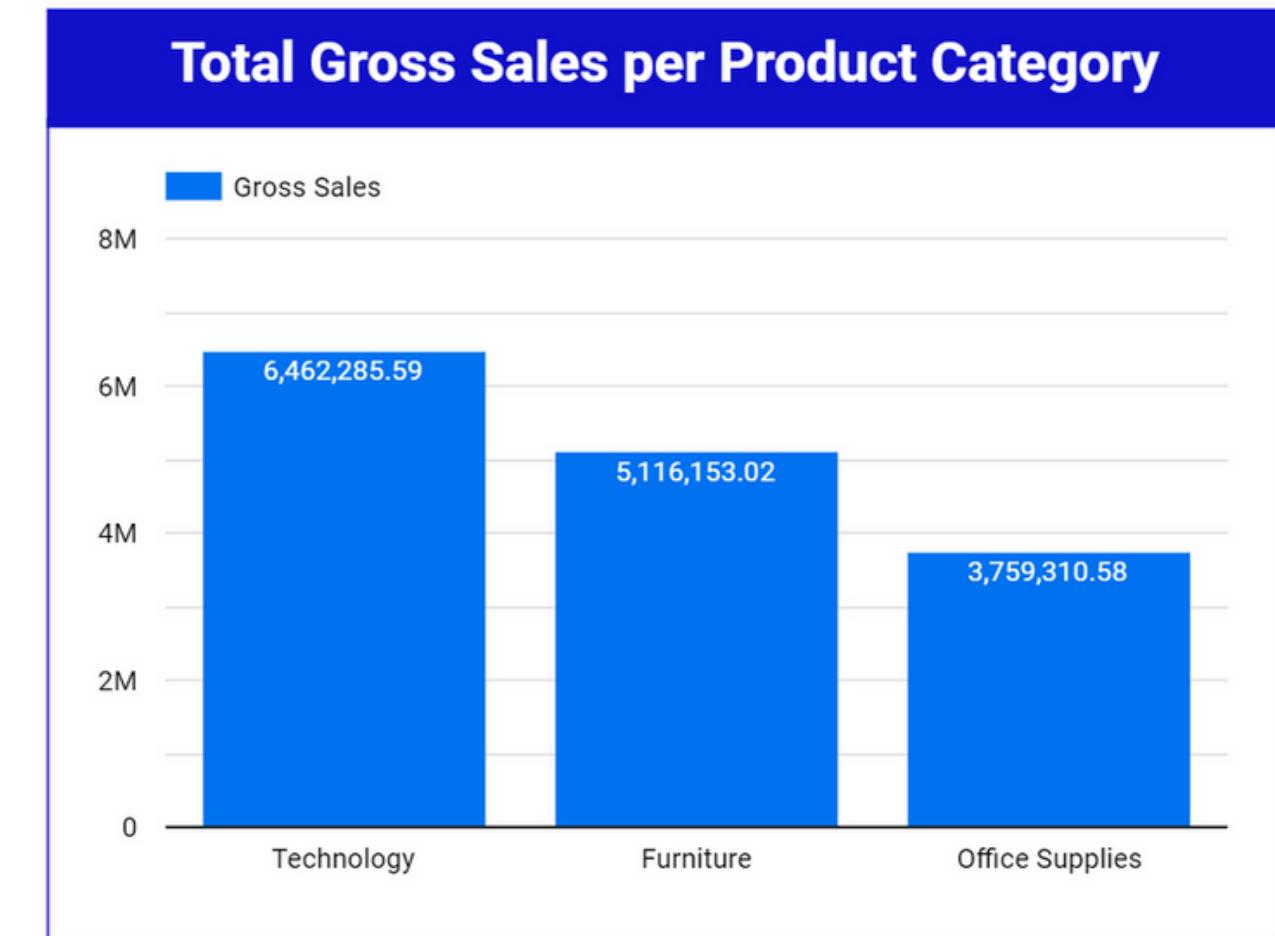
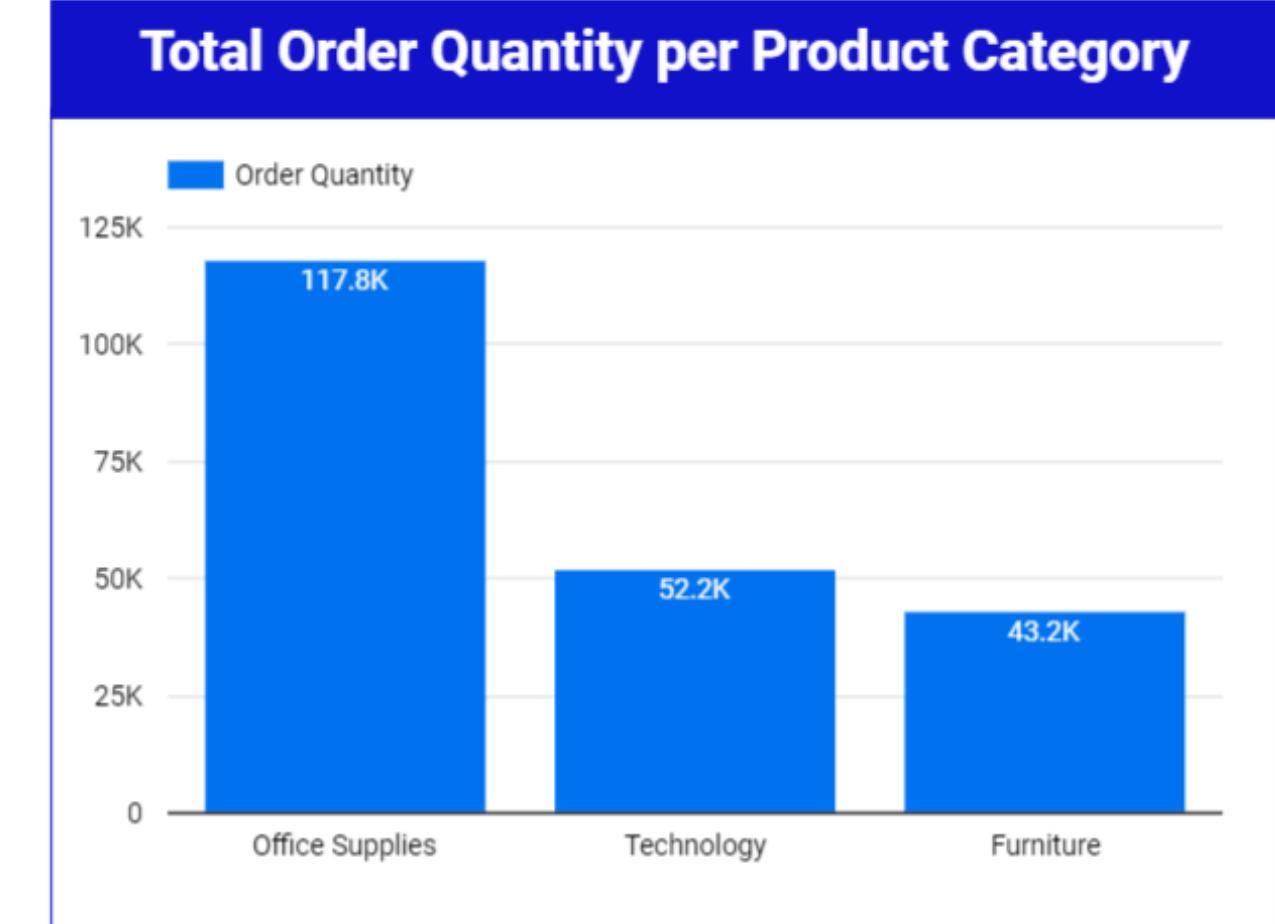


## Team 6 Section Bhinneka

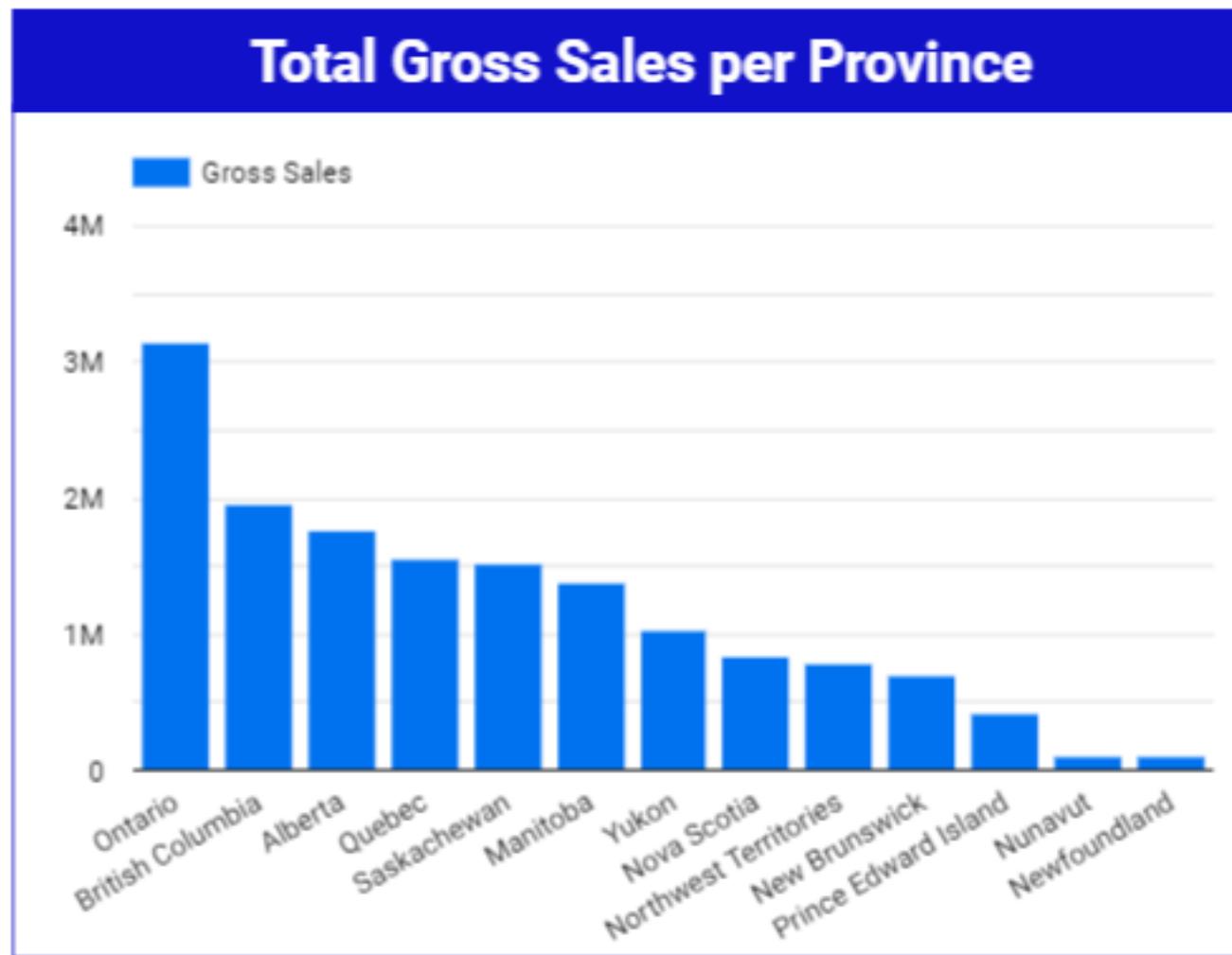
### Total Order Quantity per Product Category & Total Gross Sales per Product Category

## Recommendation

- Strengthen **brand awareness** for each category, especially **technology** and **furniture** because both provide **greater profit** from each unit sale.
- Holding or participating in **events or promotions** (especially technology and furniture) to **attract customers** there by **increasing** the total order quantity.
- Conduct research on **customer needs** in each category and enrich **product diversity** so that the company does not depend on just one category.



## Total Gross Sales per Province



### Insight

- **Nunavut and Newfoundland** are the areas with the **smallest** gross sales.
- There are provinces with gross sales **below 1 billion**.

### Recommendation

- **Analyzing** the population, marketing strategy, and product distribution flow in provinces with **gross sales below 1 million**.
- **Increase the marketing communication** to newfoudland and nunavut provinces and renew **distributors chain** according the analysis.

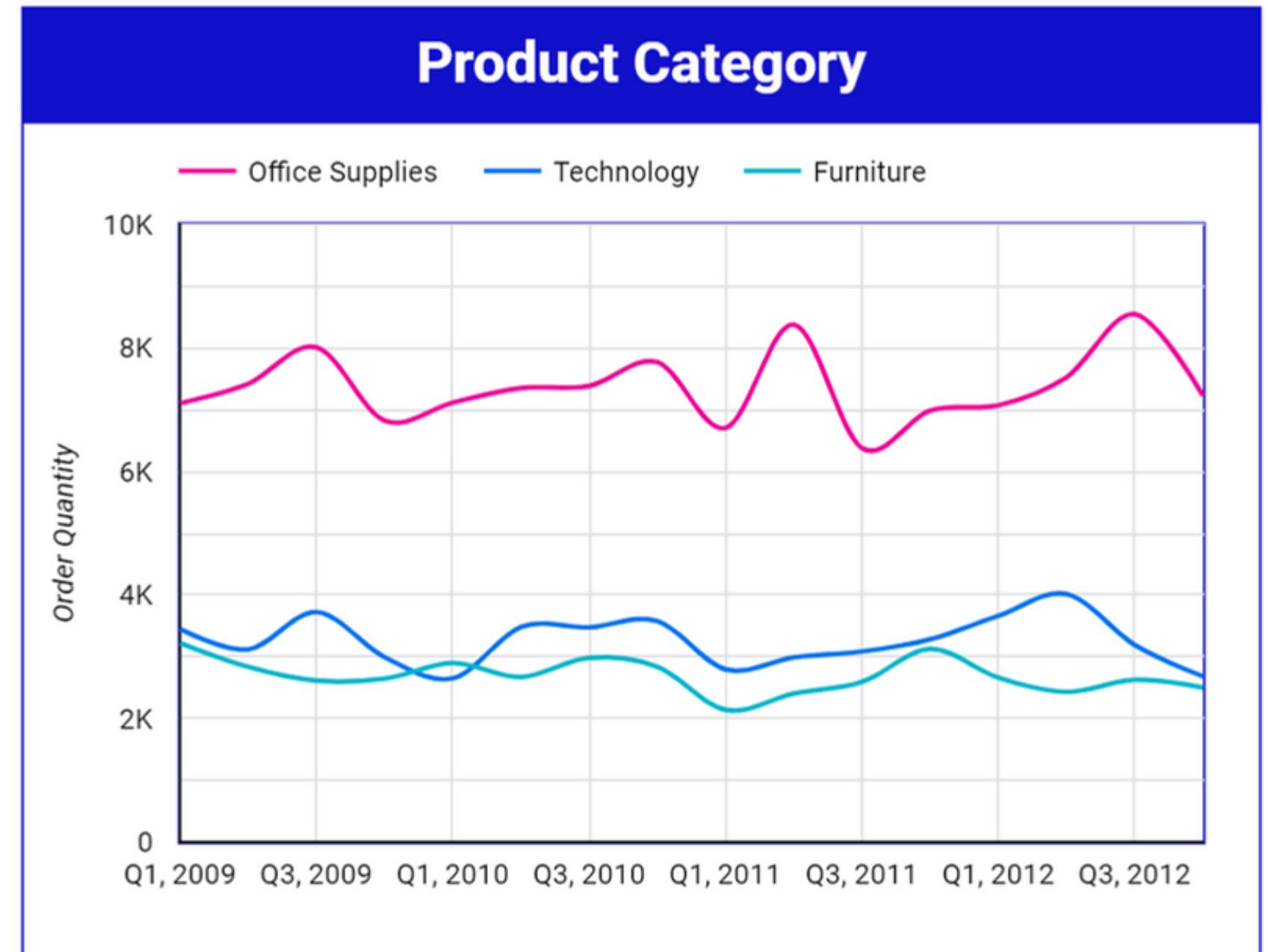
# Product Category

## Insight

- There was a **decline** in product sales in Q4 2012 **compared** to Q3 2012.
- Furniture sales **decreased** by **5%**, office supplies (OS) sales **decreased** by **15%**, and tech product sales **decreased** by **16%**.
- The **highest** number of products were sold during **Q3 2012**.

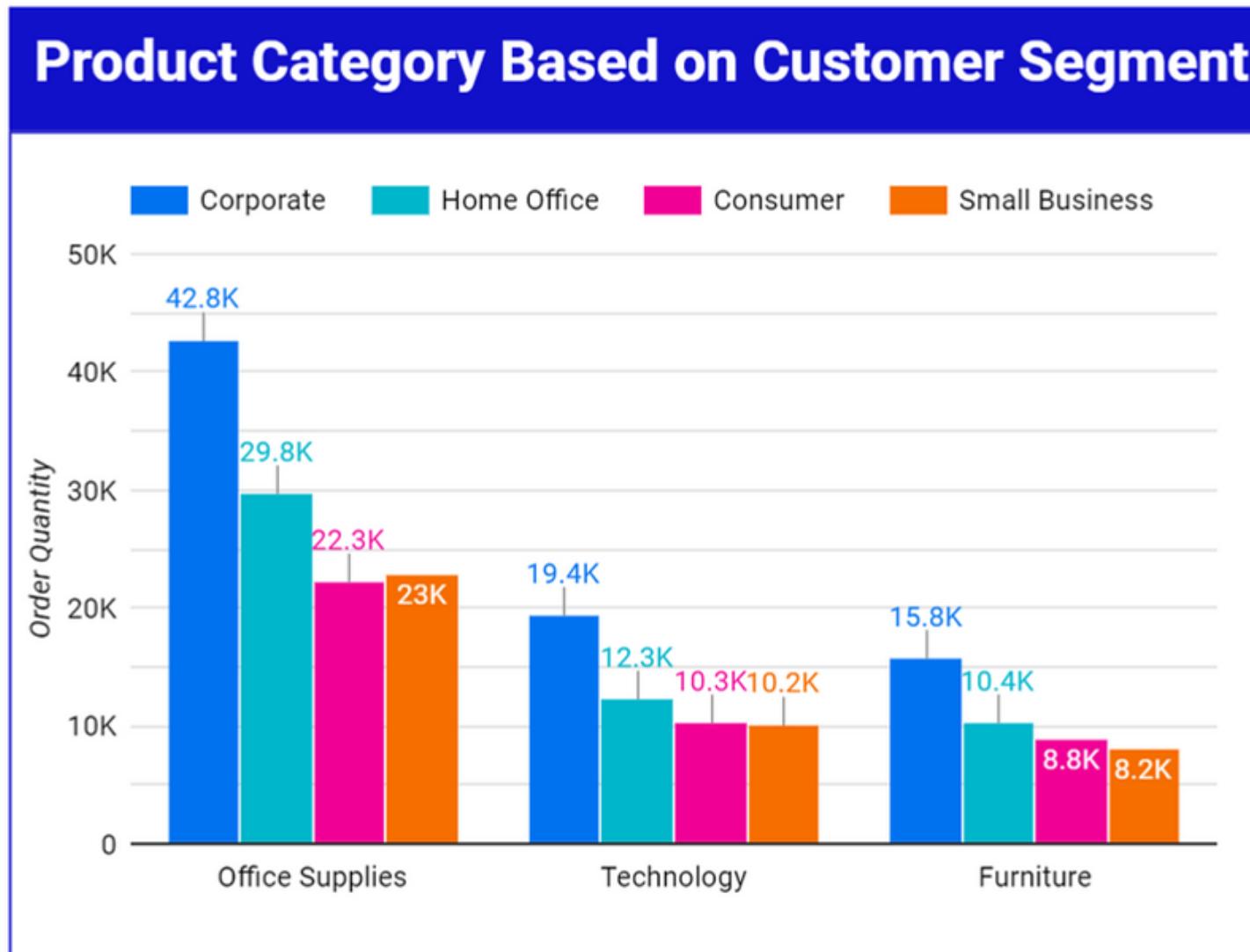
## Recommendation

- Strengthen **brand awareness**.
- Create a **product catalog** that allows customers to be **aware** of the **wide range of products** offered by the company.



## Team 6 Section Bhinneka

# Product Category Based on Customer Segment



## Insight

- **Corporate** is the **biggest** market of all segments.
- **Office Supplies** is the **best-selling** product category based on all customer segments.

## Recommendation

- **Strengthening business relations** and conducting corporate-centred marketing strategies such as cooperating in the supply of all/part of office needs and providing product discount vouchers to employees.
- **Analyze** purchases in each segment for home offices, consumers, and small businesses to **align marketing strategies**.

## Team 6 Section Bhinneka

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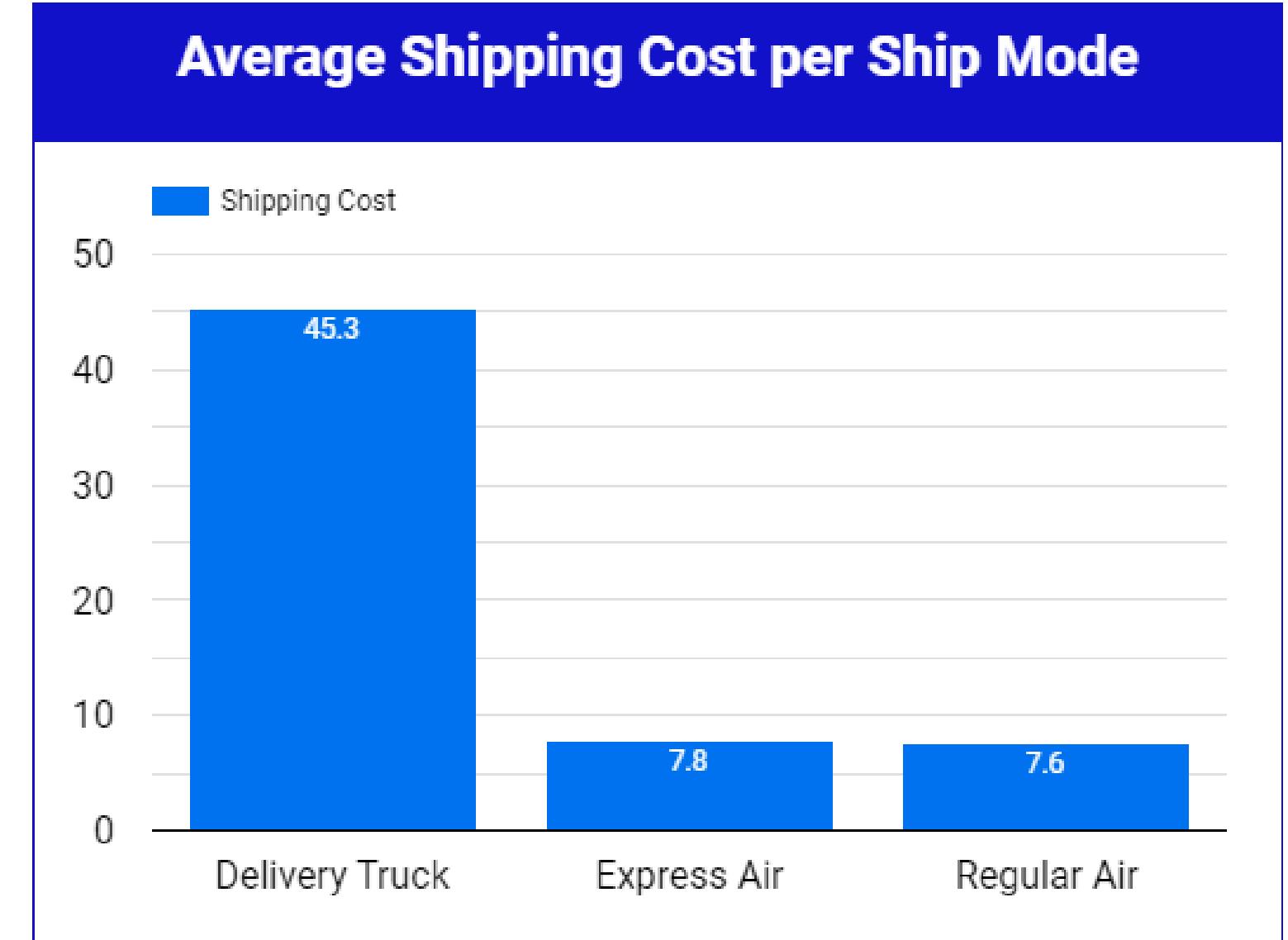
# Average Shipping Cost per Ship Mode

### Insight

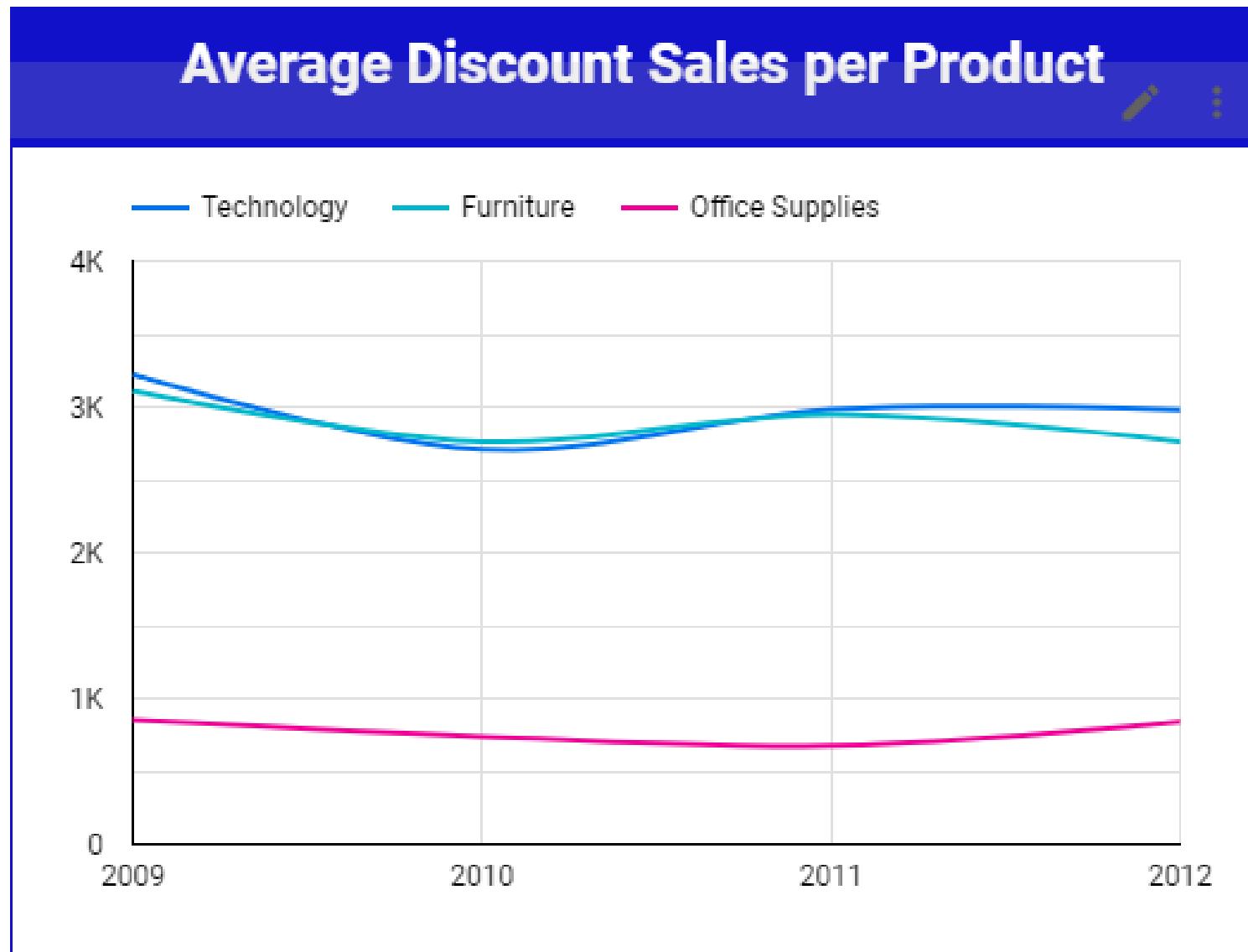
- Delivery truck has the **highest average shipping cost** compared to express air and regular air.
- There is **not much difference** between average shipping cost express air and regular air.

### Recommendation

- **Dealing/cooperating** with vendors/delivery services
- **Increasing** product delivery by **air** rather than land because it provides a **lower** average cost.



## Team 6 Section Bhinneka



## Average Discount Sales per Product

### Insight

- Product of **Office supplies** is low for discount, Though office supplies is the **best selling product**.
- Happened because the **raw material** price for office supplies (such as paper and binder) is **cheaper**.
- The average of **discount sales** per product fluctuates every year.

### Recommendation

- **Look for market prices** for technology and furniture
- Research competitors to consider **reducing the selling price** of products.

## Team 6 Section Bhinneka

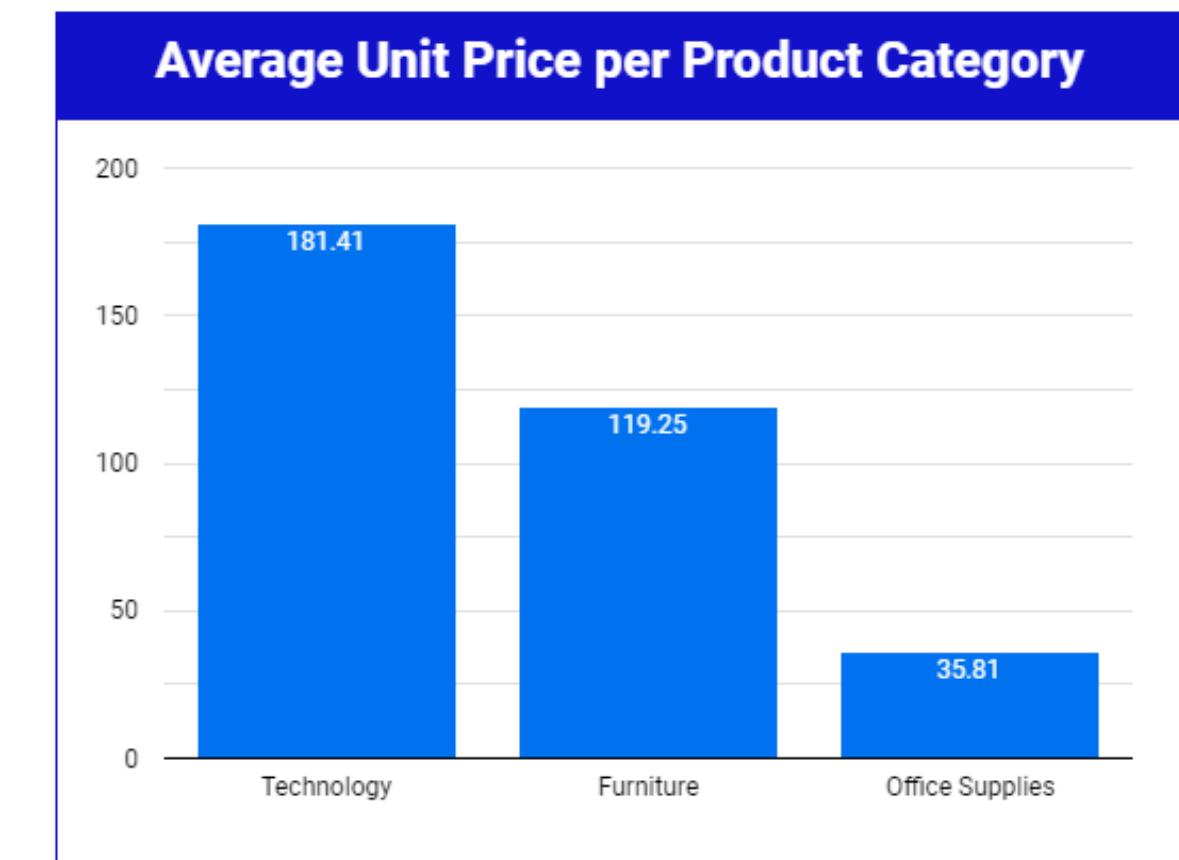
# Average Unit Price per Product Category & Average Unit Price per product Sub-Category

### Insight

- Technology has the **highest** unit price average.
- There is a **significant difference** from office supplies with tech and furniture average.
- **Top ten** of the highest average unit prices are **dominated by technology and furniture**.

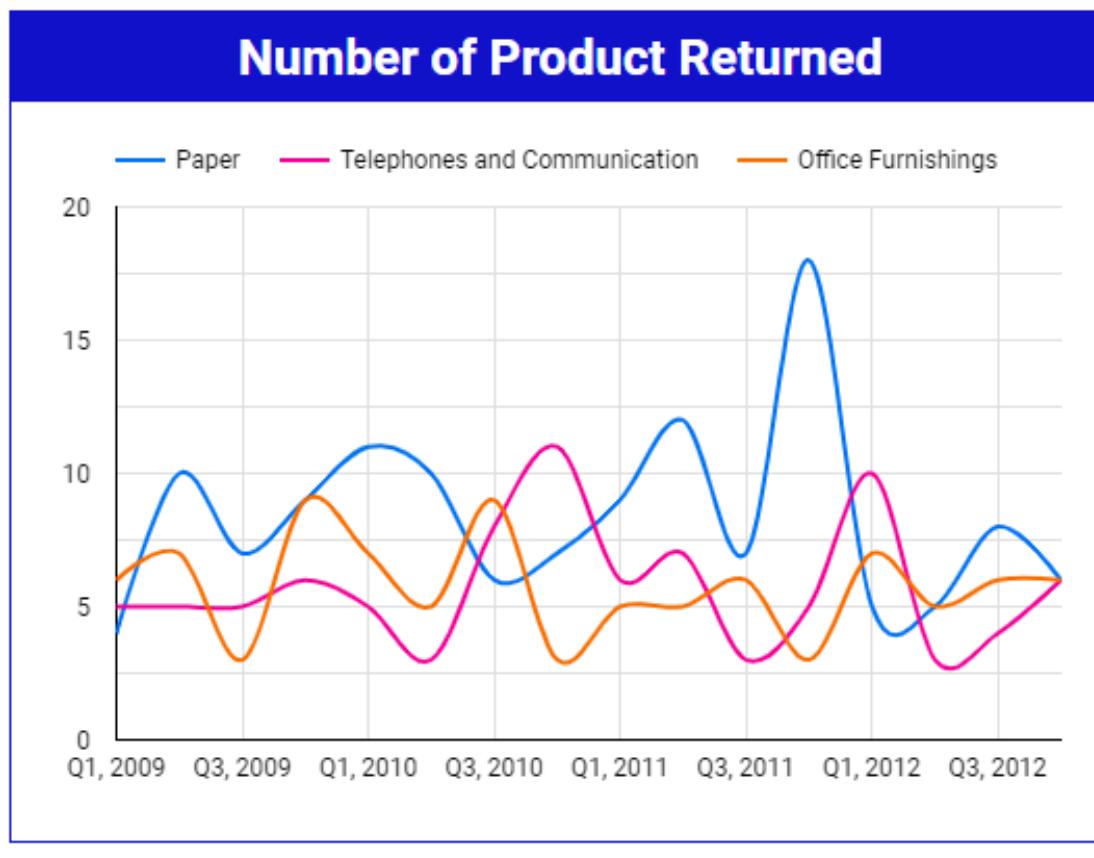
### Recommendation

- Looking for **raw materials** with the **same quality** and **better price** to reduce the price of tecnology and furniture.



Average Unit Price per Product Sub-Category

	Product Sub-Category	Unit Price
1.	Copiers and Fax	745.97
2.	Office Machines	565.72
3.	Tables	216.98
4.	Chairs & Chairmats	183.92
5.	Bookcases	175.04
6.	Telephones and Communication	98.35
7.	Storage & Organization	79.43
8.	Appliances	72.64
9.	Binders and Binder Accessories	57.6
10	Computer Peripherals	42.5



# Number of Product Returned

## Insight

- The **highest** product returned is **paper** from office supplies category in Q4 2011 with grand total the product returned is **134**.
- Followed by **telephone and communication** from technology category Q4 2010 with grand total of telephone returned **92**.
- Followed by **office furnishing** from furniture category in Q4 2009 with grand total of telephone returned **92**.
- We find the **highest** product returned is **packed by the small box packaging**.

Product Category	Product Sub-Category	Returns	Record Count...	
1. Office Supplies	Paper	Returned	134	
2. Furniture	Office Furnishings	Returned	92	
3. Technology	Telephones and Comm...	Returned	92	
4. Office Supplies	Binders and Binder Acc...	Returned	91	
5. Technology	Computer Peripherals	Returned	80	
6. Office Supplies	Pens & Art Supplies	Returned	73	
7. Office Supplies	Storage & Organization	Returned	49	
8. Furniture	Tables	Returned	44	
9. Technology	Office Machines	Returned	37	
1...	Office Supplies	Appliances	Returned	33

## Recommendation

- **Increase quality of products** to reduce the returned product.
- Look for **better small box packaging** or change the vendor or negotiate the customers to change the packaging to another category.

Column, bar, and pie charts compare values in a single category, such as the number of products sold by each salesperson. Pie charts show each category's value as a percentage of the whole.

Fundraiser Results by Salesperson

PARTICIPANT	UNITS SOLD
Andy	15
Chris	15
Daniel	9
Grace	14
Stephanie	21

Column Chart



Pie Chart



# RECOMMENDATION



# Recommendation



## Sales Strategy

- Offer **promotions** and **discounts** on products in categories with **lower sales** and **average unit prices**, to increase their sales.
- **Increase sales** and **marketing** efforts in provinces with **low sales performance**, Nunavut and Newfoundland Provinces.



## Customer Relationship

- Maintain the **relationship** with customers especially for **Corporate** segment, such as implement **loyalty programs** for strategy to **increase** repeat orders.



## Product Development

- Explore for better options to **reduce** the **returned** product, such as research for **better packaging** and **increase the quality** of product.
- Conduct research on **customer needs** in each category and enrich **product diversity** so that the company does not depend on just one category.



## Supply Chain

- Looking for better **options** to **reduce** the **average shipping cost**, such as using more air shipments or negotiating vendor with better rates for trucking delivery.

**Team 6 Section Bhinneka**



**THANK YOU**

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