



# Capstone Business Analysis project

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# About the Project



In this project we will get to know about the various tools used in business analysis and get a thorough understanding of the data set provided by working with various tool deriving insights from the data.



We will also learn importing data into various software like Excel, SQL and Power BI and perform data cleaning along with dashboard creation in Power BI.

# Summary of the Data-set



This data set of two financial years (2013-2014) give us a comprehensive understanding about the product sold to different countries, the segment in which they belong , the manufacturing cost of the product, the number of units sold , the discount offered on the product and the dates in which the product has been shipped.

Lastly the cost of goods sold, the gross sales of the product in different country and profit earned in the entire transaction.

With this data information we get to know about the growth rate of the company year on year secondly we can get to know which product is getting more demands in the countries and how much profit was earned from there so that in future we can keep the stocks ready by the particular date to deliver to that country in which demand is maximum and predict the product or segment on which we have to make changes for improvement ,which will optimize the growth and efficiency of the company.

# Statistical Tests

Country	Segment	Discounts	Profit	Discount		Profit		t-Test: Paired Two Sample for Means	
Canada	Government	\$0.00	\$16,185.00						
Germany	Government	\$0.00	\$13,210.00						
France	Midmarket	\$0.00	\$10,890.00	Mean	13150.3546	Mean	24133.86037		
Germany	Midmarket	\$0.00	\$4,440.00	Standard Error	867.917127	Standard Error	1616.199768	Mean	13150.35463 24133.86037
Mexico	Midmarket	\$0.00	\$12,350.00	Median	2585.25	Median	9242.2	Variance	527296097.9 1828471184
Germany	Government	\$0.00	\$136,170.00	Mode	0	Mode	0	Observations	700 700
Germany	Midmarket	\$0.00	\$4,605.00	Standard Deviation	22962.9288	Standard Deviation	42760.62656	Pearson Correlation	0.383086885
Canada	Channel Partners	\$0.00	\$22,662.00	Sample Variance	527296098	Sample Variance	1828471184	Hypothesized Mean Difference	0
France	Government	\$0.00	\$18,990.00	Kurtosis	7.90571244	Kurtosis	8.678616216	df	699
Germany	Channel Partners	\$0.00	\$13,905.00	Skewness	2.68503894	Skewness	2.712151264	t Stat	-7.25707686
Mexico	Midmarket	\$0.00	\$12,350.00	Range	149677.5	Range	302817.5	P(T<=t) one-tail	5.27396E-13
Canada	Enterprise	\$0.00	\$13,327.50	Minimum	0	Minimum	-40617.5	t Critical one-tail	1.647036464
Mexico	Small Business	\$0.00	\$47,900.00	Maximum	149677.5	Maximum	262200	P(T<=t) two-tail	1.05479E-12
Germany	Government	\$0.00	\$4,292.00	Sum	9205248.24	Sum	16893702.26	t Critical two-tail	1.963363576
Canada	Enterprise	\$0.00	\$1,725.00	Count	700	Count	700		
United States	Midmarket	\$0.00	\$3,075.00		0		0		
Canada	Government	\$0.00	\$2,920.00						
Mexico	Midmarket	\$0.00	\$4,870.00	<b>Null Hypothesis (H0):</b> Discounts do not have a significant effect on profit.					
Canada	Channel Partners	\$0.00	\$22,662.00	<b>Alternative Hypothesis (H1):</b> Discounts have a significant effect on profit.					
Germany	Government	\$0.00	\$90,540.00						
Germany	Channel Partners	\$0.00	\$3,303.00	Both p-values are extremely small than (0.05), indicating that the difference between					
Mexico	Government	\$0.00	\$1,766.00	Variable 1 and Variable 2 is statistically significant. we would reject the null hypothesis in this case.					
France	Midmarket	\$0.00	\$2,745.00						
Mexico	Small Business	\$0.00	\$39,400.00						
Mexico	Midmarket	\$0.00	\$12,360.00						
Total Profit		\$0.00	\$3,306.00						

- Performed t-test to find out if there is any effect on the profit by offering attractive discounts on the product.
- The test failed to reject the null hypothesis which means there is a significant increase in profit by offering discounts.

# Data cleaning and Excel Charts

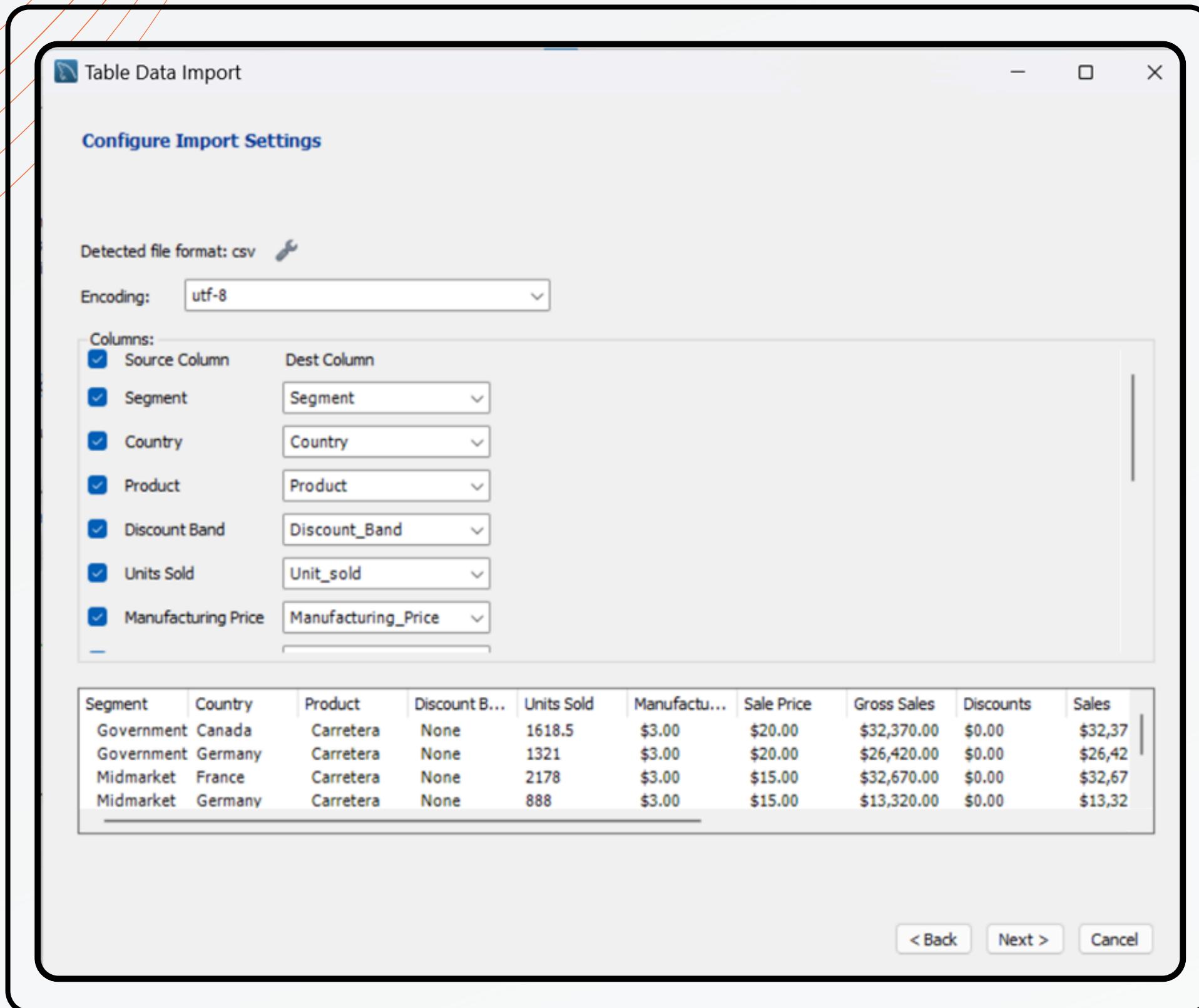
- Performed data cleaning and inserted pivot table to manage the data and charts to visualize.

## Insights

- The highest selling product is VTT.
- Max profit is earned from government and most profitable product is Paseo.
- However there is loss in segment enterprise.
- Sales in U.S.A is the maximum which is around 21.6 % of the total sales.
- Maximum sales done in the last quarter of both the year, most active month is October.

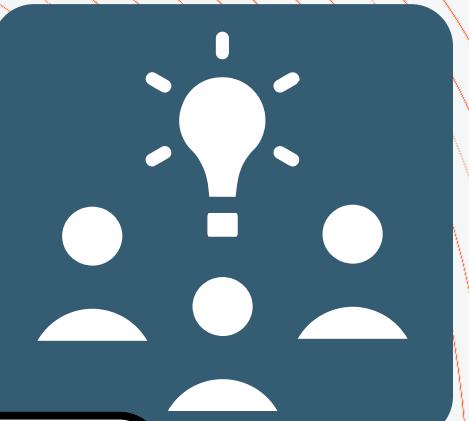


# Inserting data into SQL



Converted the Excel data-set from .xlsx to .csv file type and imported in MySQL by creating a database(Testbook) and creating table(Western\_County\_Finance) with the same column as mentioned in the data-set, using “table data Import” option we can insert the data in the database.

# Inserting data into SQL



**Data inserted  
successfully and  
checked using “Select”  
query Statement.**



```
22
23 • Select * from Western_country_Finance;
24
```

Result Grid | Filter Rows: Export: Wrap Cell Content:

Segment	Country	Product	Discount_Band	Unit_sold	Manufacturing_Price	Sales_Price	Gross_Sales	Discount	Sales	COGS	Profit
Government	Canada	Carretera	None	1619	\$3.00	\$20.00	\$32,370.00	\$0.00	\$32,370.00	\$16,185.00	\$16,185.00
Government	Germany	Carretera	None	1321	\$3.00	\$20.00	\$26,420.00	\$0.00	\$26,420.00	\$13,210.00	\$13,210.00
Midmarket	France	Carretera	None	2178	\$3.00	\$15.00	\$32,670.00	\$0.00	\$32,670.00	\$21,780.00	\$10,890.00
Midmarket	Germany	Carretera	None	888	\$3.00	\$15.00	\$13,320.00	\$0.00	\$13,320.00	\$8,880.00	\$4,440.00
Midmarket	Mexico	Carretera	None	2470	\$3.00	\$15.00	\$37,050.00	\$0.00	\$37,050.00	\$24,700.00	\$12,350.00
Government	Germany	Carretera	None	1513	\$3.00	\$350.00	\$529,550.00	\$0.00	\$529,550.00	\$393,380.00	\$136,170.00
Midmarket	Germany	Montana	None	921	\$5.00	\$15.00	\$13,815.00	\$0.00	\$13,815.00	\$9,210.00	\$4,605.00
Channel Partners	Canada	Montana	None	2518	\$5.00	\$12.00	\$30,216.00	\$0.00	\$30,216.00	\$7,554.00	\$22,662.00
Government	France	Montana	None	1899	\$5.00	\$20.00	\$37,980.00	\$0.00	\$37,980.00	\$18,990.00	\$18,990.00
Channel Partners	Germany	Montana	None	1545	\$5.00	\$12.00	\$18,540.00	\$0.00	\$18,540.00	\$4,635.00	\$13,905.00
Midmarket	Mexico	Montana	None	2470	\$5.00	\$15.00	\$37,050.00	\$0.00	\$37,050.00	\$24,700.00	\$12,350.00
Enterprise	Canada	Montana	None	2666	\$5.00	\$125.00	\$333,187.50	\$0.00	\$333,187.50	\$319,860.00	\$13,327.50
Small Business	Mexico	Montana	None	958	\$5.00	\$300.00	\$287,400.00	\$0.00	\$287,400.00	\$239,500.00	\$47,900.00

Western\_country\_Finance 2 x Read Only

# Importing Data from SQL to Power BI

**Navigator**

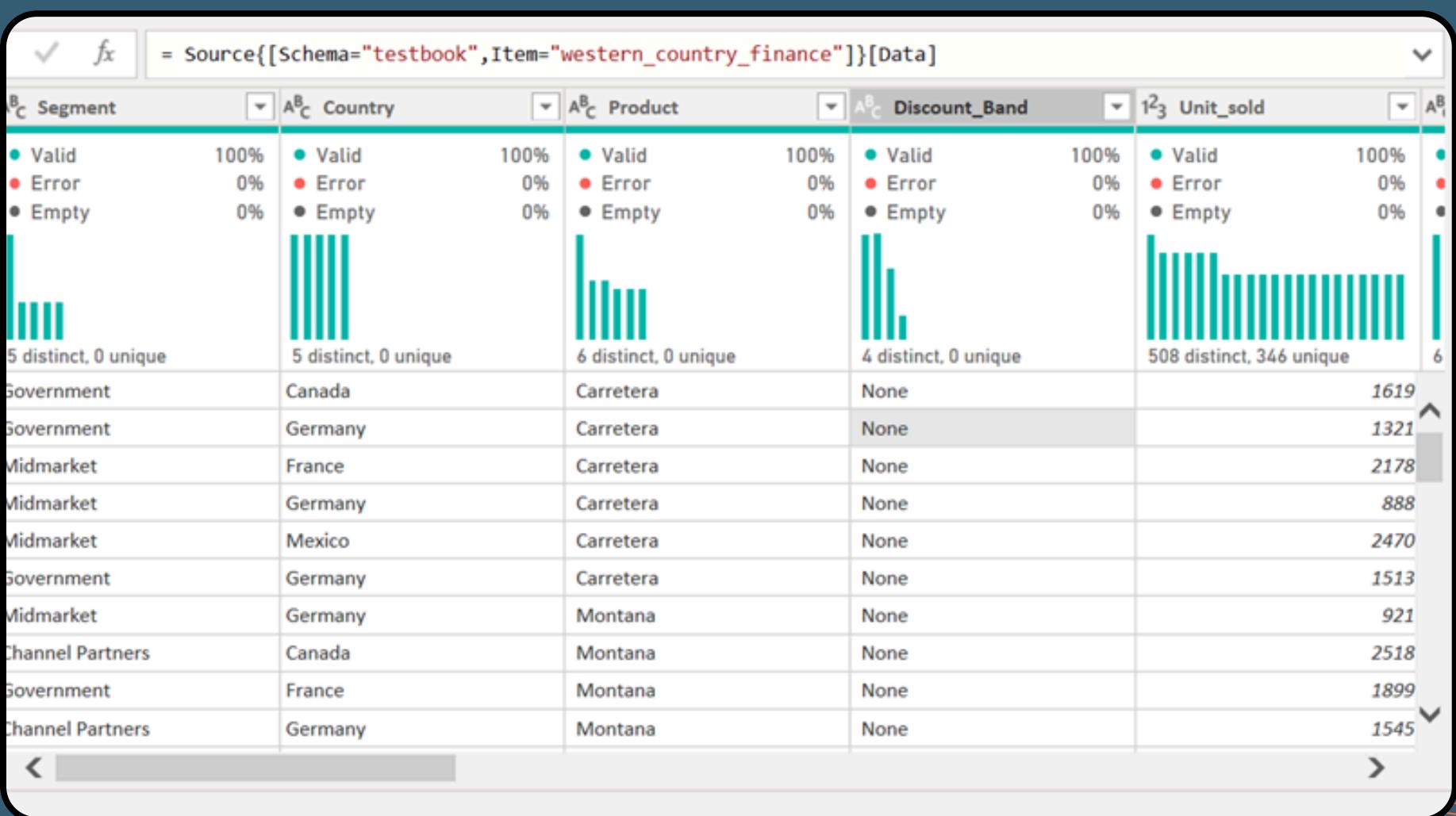
Display Options ▾

- localhost: testbook [8]
  - testbook.department
  - testbook.employees
  - testbook.market\_price
  - testbook.player
  - testbook.station
  - testbook.stats
  - testbook.triangles
  - testbook.western\_country\_finance

testbook.western\_country\_finance

Profit	Date	Month_Number	Month_Name	Years
\$16,185.00	01-01-2014	1	January	2014
\$13,210.00	01-01-2014	1	January	2014
\$10,890.00	01-06-2014	6	June	2014
\$4,440.00	01-06-2014	6	June	2014
\$12,350.00	01-06-2014	6	June	2014
\$136,170.00	01-12-2014	12	December	2014
\$4,605.00	01-03-2014	3	March	2014
\$22,662.00	01-06-2014	6	June	2014
\$18,990.00	01-06-2014	6	June	2014
\$13,905.00	01-06-2014	6	June	2014
\$12,350.00	01-06-2014	6	June	2014
\$13,327.50	01-07-2014	7	July	2014
\$47,900.00	01-08-2014	8	August	2014
\$4,292.00	01-09-2014	9	September	2014
\$1,725.00	01-10-2013	10	October	2013
\$3,075.00	01-12-2014	12	December	2014
\$2,920.00	01-02-2014	2	February	2014
\$4,870.00	01-02-2014	2	February	2014
\$22,662.00	01-06-2014	6	June	2014
\$90,540.00	01-06-2014	6	June	2014
\$3,303.00	01-07-2014	7	July	2014
\$1,766.00	01-08-2014	8	August	2014
\$2,745.00	01-09-2014	9	September	2014

Select Related Tables Load Transform Data Cancel



**Imported the data successfully using “import data SQL server database” and “server Id”, checked for any error or blanks spaces in “Power Query Editor”**

# Power BI Dashboard

Dashboard includes clustered column chart, clustered bar chart, line and clustered column chart, donut chats, cards and filter for year, quarter and months.



# Insights and Questions

## →Product wise Sales:

- Amarilla: \$ 17747116.06
- Carretera: \$ 13815307.89
- Montana: \$ 15390801.88
- Paseo: \$ 33011143.95
- Velo: \$ 18250059.47
- VTT: \$ 20511921.02

## →Yearly sales

- 2013: \$ 26415255.51
- 2014: \$ 92311094.75

## →Country wise Sales

- Canada: \$ 24887654.89
- France: \$ 24354172.28
- Germany: \$ 23505340.82
- Mexico: \$ 20949352.11
- U.S.A: \$ 25029830.17

## →Segment wise Profit

- Channel Partners: \$ 1316803.14
- Enterprise: \$ -614545.625
- Government: \$ 11388173.17
- Midmarket: \$ 660103.075
- Small Business: \$ 4143168.5

## →Yearly profit

- 2013: \$ 3878464.51
- 2014: \$ 13015237.75

## →Profit and sales by Quarter

	Profit	Sales
• Quarter 1:	\$26,32,442.94	\$1,94,92,152.94
• Quarter 2:	\$32,32,378.45	\$2,26,93,879.95
• Quarter 3:	\$35,01,667.37	\$2,48,50,239.87
• Quarter 4:	\$75,27,213.50	\$5,16,90,077.50

# Insights and Questions

## →No. of units sold year over year

- 2013: 264674
- 2014: 861132

## →Top 2 countries

- Canada
- France

## →Product wise discount

- Amarilla: \$ 1290163.44
- Carretera: \$ 1122212.615
- Montana: \$ 1159032.62
- Paseo: \$ 2600518.05
- Velo: \$ 1576709.035
- VTT: \$ 1456612.48

## →Bottom 3 products

- Velo
- Montana
- Carretera

# Insights and Questions

## →Segment wise Product Sales

Segment	Amarilla	Carretera	Montana	Paseo	Velo	VTT	Grand Total
Channel Partners	\$ 317,643.00	\$ 282,838.68	\$ 261,844.56	\$ 454,514.40	\$ 182,924.04	\$ 300,828.96	\$ 1,800,593.64
Enterprise	\$ 2,643,607.50	\$ 3,203,708.13	\$ 2,614,843.75	\$ 5,267,860.00	\$ 3,581,237.50	\$ 2,300,437.50	\$ 19,611,694.38
Government	\$ 9,942,899.11	\$ 6,080,944.08	\$ 5,548,936.02	\$ 14,882,230.70	\$ 7,813,422.05	\$ 8,235,828.71	\$ 52,504,260.67
Midmarket	\$ 248,685.45	\$ 337,305.00	\$ 290,239.05	\$ 907,729.35	\$ 264,498.38	\$ 333,425.85	\$ 2,381,883.08
Small Business	\$ 4,594,281.00	\$ 3,910,512.00	\$ 6,674,938.50	\$ 11,498,809.50	\$ 6,407,977.50	\$ 9,341,400.00	\$ 42,427,918.50

## Segment wise product wise profit

Row Labels	Amarilla	Carretera	Montana	Paseo	Velo	VTT	Grand Total
Channel Partners	\$ 230,068.50	\$ 208,405.68	\$ 192,457.56	\$ 331,838.40	\$ 134,267.04	\$ 219,765.96	\$ 1,316,803.14
Enterprise	\$ -95,152.50	\$ -222,711.88	\$ -31,096.25	\$ -81,740.00	\$ -84,762.50	\$ -99,082.50	\$ -614,545.63
Government	\$ 2,208,301.61	\$ 1,398,994.08	\$ 1,126,201.02	\$ 3,057,290.70	\$ 1,756,732.05	\$ 1,840,653.71	\$ 11,388,173.17
Midmarket	\$ 63,605.45	\$ 94,105.00	\$ 83,879.05	\$ 258,739.35	\$ 68,653.38	\$ 91,120.85	\$ 660,103.08
Small Business	\$ 407,281.00	\$ 348,012.00	\$ 743,313.50	\$ 1,231,309.50	\$ 431,102.50	\$ 982,150.00	\$ 4,143,168.50

# Conclusion

In conclusion, the sales landscape in Western countries is marked by high levels of competition, consumer-driven markets, and a strong emphasis on innovation and customer experience. Businesses in these economies leverage advanced technologies, data analytics, and e-commerce platforms to enhance their sales strategies and meet the evolving needs of a diverse consumer base. While factors such as economic shifts, regulatory changes, and global competition pose challenges, companies that prioritize adaptability, personalized offerings, and sustainable practices continue to thrive. Moving forward, businesses must remain agile and forward-thinking to capitalize on emerging trends and maintain their competitive edge in the Western sales markets.

# Thank You!

