

Sales Analysis Report in Power BI

The Objective of the Sales Dashboard / Business Problem

The report aims to thoroughly analyze and present detailed insights into sales, profit, orders, profit margin, and various comparative metrics. It seeks to offer a clear comprehension of essential performance indicators and trends through the application of Power BI. To summarize, the report's objectives are as follows:

1. **Calculate Total Sales:** Calculate and display the total sales value for the selected period, allowing stakeholders to understand the overall revenue generated.
2. **Calculate Profit:** Calculate and visualize the total profit achieved based on the sales data, providing insights into the financial performance.
3. **Analyze Orders:** Analyze the number of orders placed during the selected period, helping to identify sales patterns and order trends.
4. **Calculate Profit Margin:** Calculate and visualize the profit margin percentage, enabling stakeholders to assess the profitability of products or services.
5. **Compare Sales by Product with Previous Year:** Compare sales performance for each product between the selected period and the previous year, highlighting growth or decline in sales.
6. **Compare Sales by Months with Previous Year:** Compare sales performance across different months between the selected period and the previous year, identifying regions with significant changes.
7. **Display Top 5 Cities:** Present a visualization showcasing the top 5 cities based on sales, allowing stakeholders to quickly identify the most profitable locations.
8. **Compare Profit by Channel with Previous Year:** Compare profit generated by each channel between the selected period and the previous year, indicating improvements or challenges in profitability.
9. **Analyze Sales by Customer and Compare with Previous Year:** Analyze sales data by customer, highlighting the performance of individual customers and comparing it to the previous year.
10. **Create Slicers for Date, City, Product, and Channel:** Enable stakeholders to interact with the data by providing slicers for selecting specific dates, cities, products, and channels, allowing for dynamic filtering and personalized analysis.

STEP 1: Downloading the data

An Excel sheet with existing data was used which is called "Sales Analysis Report".

It has four tabs:

- Sales orders (7992 rows, 11 columns)

- Customers (51 rows, 2 columns)
- Regions (101 rows, 7 columns)
- Products (16 rows, 2 columns)

STEP 2: Power Query - ETL process

Within Power BI, the Power Query Editor stands as a robust instrument for the purposes of data cleansing and transformation. We will employ this tool to prepare and refine the data, rendering it well-suited for analytical exploration. Tasks may encompass actions like eliminating duplicates, addressing missing values, amalgamating datasets, or generating computed columns.

STEP 3: Create a data table

When working with Data Analysis Expressions (DAX) time intelligence functions, it's imperative to meet a foundational model requirement: We must include a date table within our model.

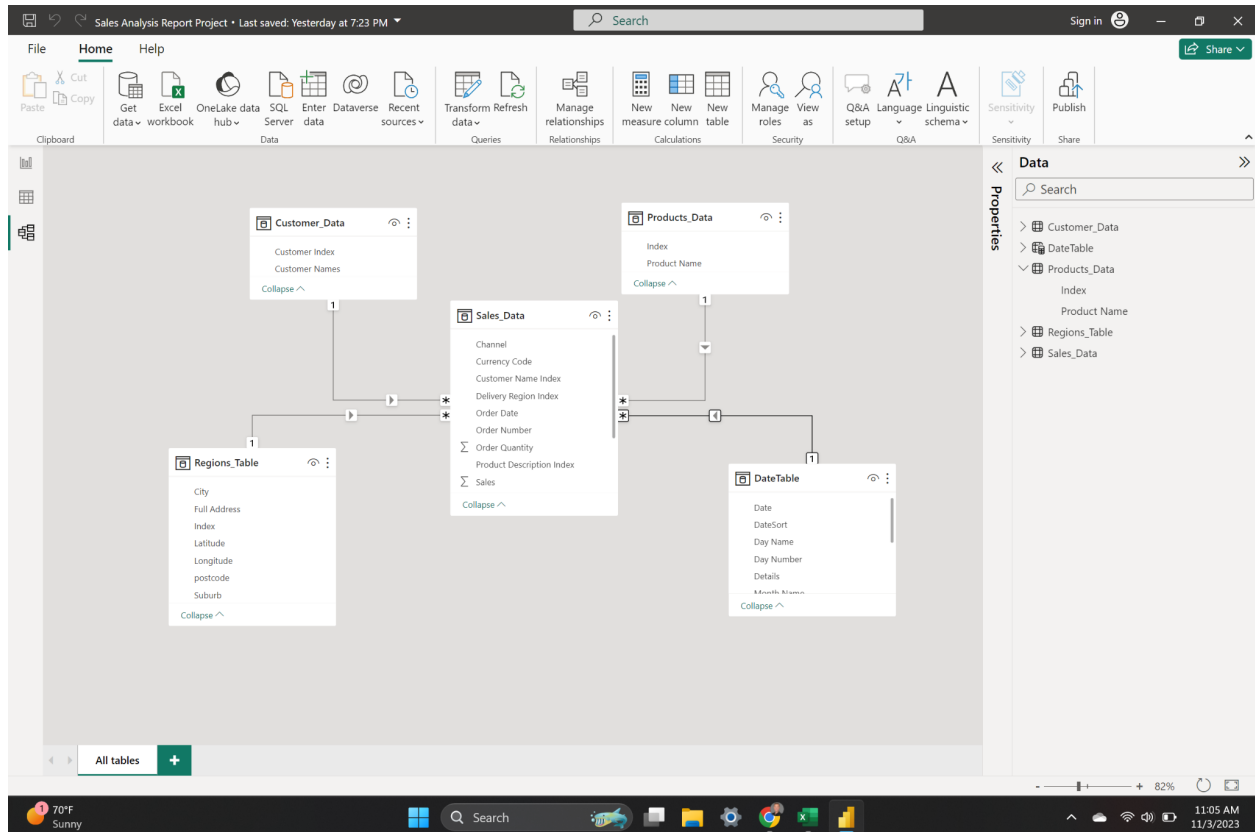
The screenshot displays the Microsoft Power BI Desktop interface. The 'Table tools' ribbon is active, and the 'DateTable' is being created using the 'New table' button. The formula bar shows a DAX expression for the date table. The 'Data' pane on the right shows the 'DateTable' as a new table in the model. The bottom of the screen shows a preview of the date table data.

Table: DateTable (1,095 rows)

Date	Year	Quarter	Quarter No	Month No	Month Name	Month Short Name	Month Short Name Plus Year	DateSort	Day Name	Details
1/1/2017 12:00:00 AM	2017	Q1	1	1	January	Jan	Jan,17	20170101	Sunday	01-Jan-2017
1/2/2017 12:00:00 AM	2017	Q1	1	1	January	Jan	Jan,17	20170102	Monday	02-Jan-2017
1/3/2017 12:00:00 AM	2017	Q1	1	1	January	Jan	Jan,17	20170103	Tuesday	03-Jan-2017
1/4/2017 12:00:00 AM	2017	Q1	1	1	January	Jan	Jan,17	20170104	Wednesday	04-Jan-2017
1/5/2017 12:00:00 AM	2017	Q1	1	1	January	Jan	Jan,17	20170105	Thursday	05-Jan-2017
1/6/2017 12:00:00 AM	2017	Q1	1	1	January	Jan	Jan,17	20170106	Friday	06-Jan-2017
1/7/2017 12:00:00 AM	2017	Q1	1	1	January	Jan	Jan,17	20170107	Saturday	07-Jan-2017
1/8/2017 12:00:00 AM	2017	Q1	1	1	January	Jan	Jan,17	20170108	Sunday	08-Jan-2017
1/9/2017 12:00:00 AM	2017	Q1	1	1	January	Jan	Jan,17	20170109	Monday	09-Jan-2017
1/10/2017 12:00:00 AM	2017	Q1	1	1	January	Jan	Jan,17	20170110	Tuesday	10-Jan-2017
1/11/2017 12:00:00 AM	2017	Q1	1	1	January	Jan	Jan,17	20170111	Wednesday	11-Jan-2017
1/12/2017 12:00:00 AM	2017	Q1	1	1	January	Jan	Jan,17	20170112	Thursday	12-Jan-2017
1/13/2017 12:00:00 AM	2017	Q1	1	1	January	Jan	Jan,17	20170113	Friday	13-Jan-2017
1/14/2017 12:00:00 AM	2017	Q1	1	1	January	Jan	Jan,17	20170114	Saturday	14-Jan-2017
1/15/2017 12:00:00 AM	2017	Q1	1	1	January	Jan	Jan,17	20170115	Sunday	15-Jan-2017
1/16/2017 12:00:00 AM	2017	Q1	1	1	January	Jan	Jan,17	20170116	Monday	16-Jan-2017
1/17/2017 12:00:00 AM	2017	Q1	1	1	January	Jan	Jan,17	20170117	Tuesday	17-Jan-2017
1/18/2017 12:00:00 AM	2017	Q1	1	1	January	Jan	Jan,17	20170118	Wednesday	18-Jan-2017

STEP 4: Create a data model

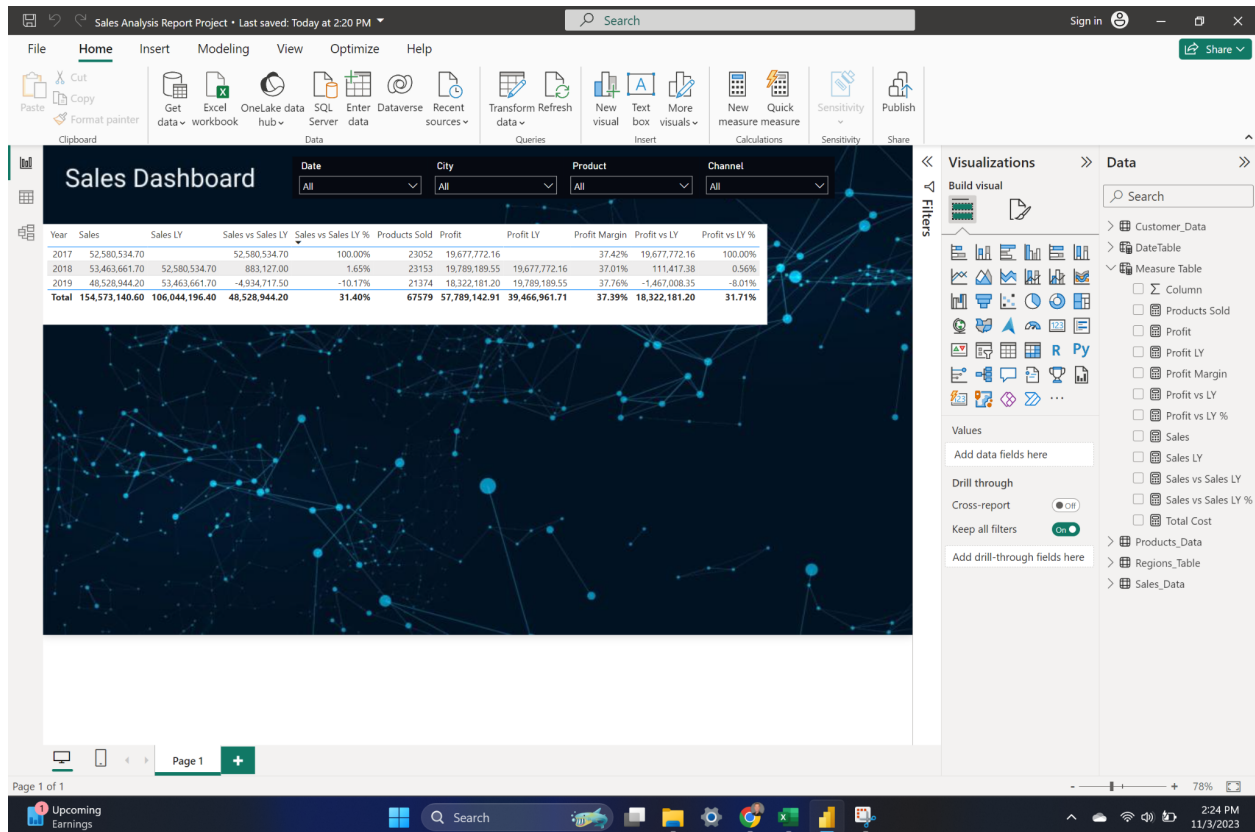
We will design and create a data model that represents the relationships between different tables in our data. Establish proper relationships, define keys, and establish hierarchies if needed. This step is crucial for accurate analysis and visualization.



STEP 5: Develop reports

Utilize the Power BI Desktop application to generate reports derived from our data model. Incorporate visual elements like charts, tables, and maps to vividly portray the data. Implement filters, slicers, and drill-through features to enable stakeholders interaction with the data.

- Created Report Background in PowerPoint
- Created Slicers – Date, City, Product, and Channel
- Created Dax measures



```
//Measures Total Sales
Sales = SUM(Sales_Data[Sales])
```

```
//Measures Previous Year Total Sales
Sales PY = CALCULATE([Sales], SAMEPERIODLASTYEAR(DateTable[Date]))
```

```
//Difference Between Current Year Sales & Previous Year Sales
Sales vs PY = [Sales] - [Sales PY]
```

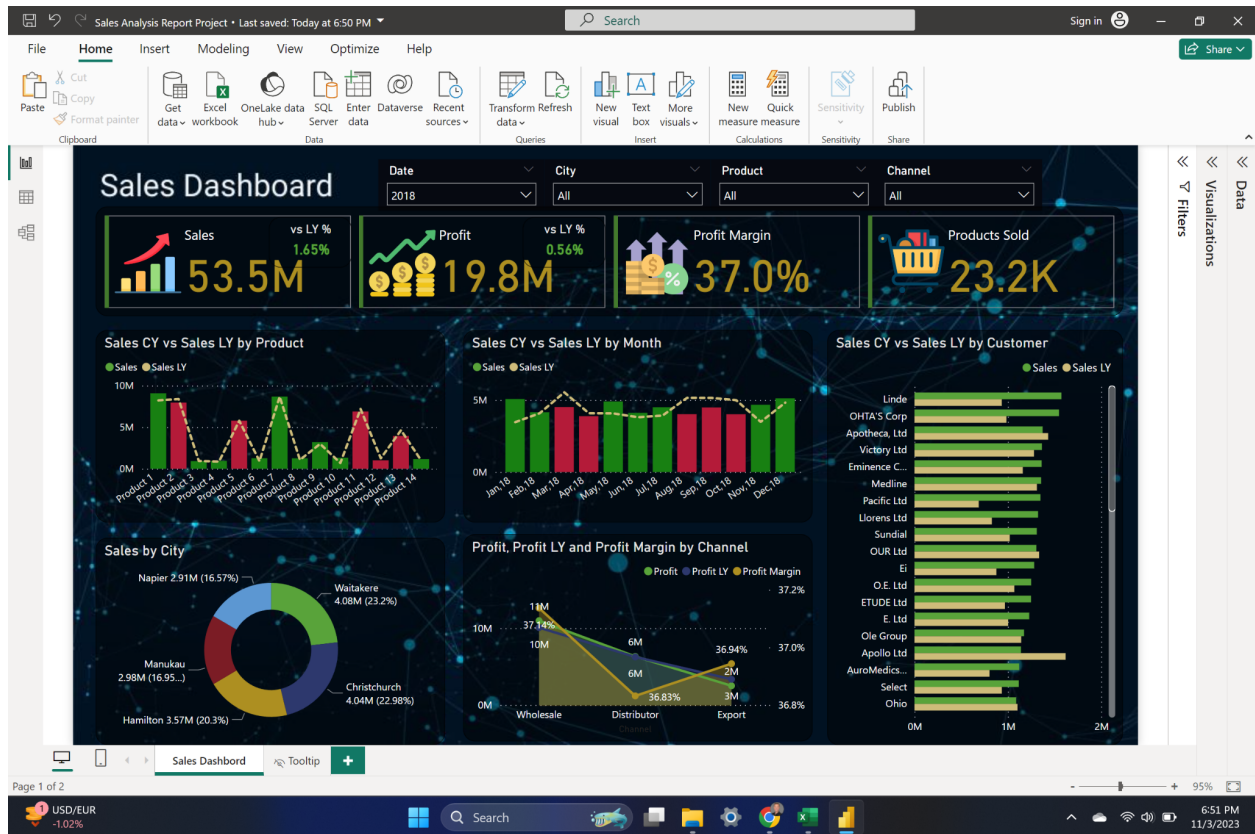
```
//Percentage Increase or Decrease in sales year on year (YOY%)
Sales vs py % = DIVIDE([Sales vs PY],[Sales],0)
```

```
>> Products Sold = SUM(Sales_Data[Order Quantity])
>> Profit = SUM(Sales_Data[Profit])
>> Profit LY = CALCULATE([Profit], SAMEPERIODLASTYEAR(DateTable[Date]))
>> Profit Vs LY = [Profit] - [Profit LY]
>> Profit vs LY % = ([Profit Vs LY]/[Profit])
>> Profit Margin = DIVIDE([Profit],[Sales],0)
>> Total Cost = SUM(Sales_Data[Total Cost])
```

Data Analysis Expressions (DAX) will be harnessed for crafting calculated columns, measures, and calculated tables to execute intricate computations and summarizations. DAX, as a robust formula language, empowers us to manipulate data effectively within the realm of Power BI.

STEP 6: Create Visuals

- 1) Sales By Product and Comparing it with last year's Sales.
- 2) Sales By Month and Comparing it with last year's Sales.
- 3) Sales of top 5 Cities
- 4) Compare Profit by channel with Previous year's Profit
- 5) Sales By Customer and Comparing it with last year's Sales
- 6) Create Cards for Sales, Profit, Profit Margin & Product Sold



Conclusion of Power BI Sales Dashboard Project

Conclusion for the year 2018:

- Sales decreased by 1.65% compare with previous year
- There is a drop in sales of the product 2, 5, 11, 12, 14
- 4 Customers are leading to a drop in sales
- The profit margin in the Wholesale channel is higher