

SALES DASHBOARD

The Objective of the Sales Dashboard / Business Problem:

The main goal of this report is to thoroughly examine and present detailed insights into various aspects of business performance, such as sales, profit, orders, profit margin, and comparisons. We aim to use Power BI to provide a clear understanding of key performance indicators and trends. Here are the key objectives of the report, explained in simple terms:

1. **Total Sales:** Show the total revenue generated during a chosen time period. This helps users understand the overall money coming in.
2. **Profit Calculation:** Display the total profit earned based on the sales data, giving insights into how well the business is financially performing.
3. **Order Analysis:** Look into the number of orders placed over a specific period. This helps identify patterns and trends in sales.
4. **Profit Margin Calculation:** Show the percentage of profit compared to total sales. This helps assess how profitable products or services are.
5. **Product Sales Comparison with Previous Year:** Compare how well each product is selling in the chosen period compared to the same period in the previous year.
6. **Monthly Sales Comparison with Previous Year:** Examine how sales perform in different months during the chosen period compared to the previous year.
7. **Top 5 Cities Display:** Showcase the top 5 cities based on sales, helping users quickly identify the most successful locations.
8. **Profit by Channel Comparison with Previous Year:** Compare how much profit each sales channel is generating in the chosen period compared to the previous year.
9. **Customer Sales Analysis and Yearly Comparison:** Analyze sales data by customer, highlighting individual customer performance and comparing it to the previous year.
10. **Slicers for Date, City, Product, and Channel:** Allow users to interact with the data by providing options to select specific dates, cities, products, and sales channels. This enables dynamic filtering for personalized analysis.

Step to follow an powerBI dashboard creation:

Step 1: Gathering data

Collect a datas from various sources including spreadsheets, databases and web services etc., ensure that the datas is relevant to your objective.

Dataset Link:  Sales Analysis Report.xlsx

Step2: Data Preprocessing and loading

Power Query Editor in Power BI is a powerful tool for data cleaning and transformation. We will use it Clean and transform the data to make it suitable for analysis. This may involve removing duplicates, handling missing values, merging datasets, or creating calculated columns.

Step3: Create a Date Table

To work with Data Analysis Expressions (DAX) time intelligence functions, there's a prerequisite model requirement: You must have at least one date table in your model.

1. Different Ways to Create Date Table

- Auto Date/Time Table
- Create a Calendar table using DAX
- Create a Calendar table using Power Query
- Import Calendar Table

2. Calendar() Function in DAX

The CALENDAR() function is used to create a custom calendar table that includes a range of dates that are specified by the user. The syntax for the CALENDAR() function is as follows:

CALENDAR(start_date, end_date)

where start_date and end_date are date values that define the start and end of the date range for the calendar table.

3. CalendarAuto() DAX Function

CALENDARAUTO() function is used to automatically generate a calendar table based on the dates present in a date column in the data model. The CALENDARAUTO() function determines the start and end dates of the date column and generates a calendar table that includes all dates within that range. The syntax for the CALENDARAUTO() function is as follows:

CALENDARAUTO()

4. Creating a simple DAX for data table

Here are the steps to create a date table in Power BI using DAX:

- Open Power BI Desktop and click on the "Modeling" tab.
- Click on "New Table" to create a new table.
- In the formula bar, enter the following DAX formula to create a date table:

DAX DataTable =

```
ADDCOLUMNS (
//CALENDAR(DATE(2020,1,1), DATE(2024,12,31)),
CALENDARAUOTO(),
"Year", YEAR([Date]),
"Quarter", "Q" & FORMAT(CEILING(MONTH([Date])/3, 1), "#"),
"Quarter No", CEILING(MONTH([Date])/3, 1),
"Month No", MONTH([Date]),
"Month Name", FORMAT([Date], "MMMM"),
"Month Short Name", FORMAT([Date], "MMM"),
"Month Short Name Plus Year", FORMAT([Date], "MMM,yy"),
"DateSort", FORMAT([Date], "yyyyMMdd"),
"Day Name", FORMAT([Date], "dddd"),
"Details", FORMAT([Date], "dd-MMM-yyyy"),
"Day Number", DAY ( [Date] )
)
```

5. Creating simple fiscal data table using DAX:

- Open Power BI Desktop and click on the “Modeling” tab.
- Click on “New Table” to create a new table.
- In the formula bar, enter the following DAX formula to create a Fiscal date table:

```
Fiscal DAX DateTable =
VAR FISCALMONTHSTART = 4
RETURN
ADDCOLUMNS (
    CALENDARAUTO (FISCALMONTHSTART - 1 ),
    "Year", YEAR ( [Date] ),
    "Month", MONTH ( [Date] ),
    "Month Name", FORMAT ( [Date], "MMMM" ),
    "Month Short Name", FORMAT ( [Date], "MMM" ),
    "Month + Year Short", FORMAT ( [Date], "M/yy" ),
    "Year No + Month Number", FORMAT ( [Date], "yyyyMM" ),
    "Quarter", CEILING ( MONTH ( [Date] ), 3 ),
    "Quarter No", CEILING ( MONTH ( [Date] ), 3 ) / 3,
    "Day Name", FORMAT ( [Date], "dddd" ),
    "Day Number", DAY ( [Date] ),
    "Fiscal Year", IF ( MONTH ( [Date] ) >= FISCALMONTHSTART, YEAR ( [Date] ), YEAR (
[Date] ) - 1 ),
    "Fiscal Quarter", CEILING ( MONTH ( EDATE ( [Date], - FISCALMONTHSTART + 1 ) ), 3
) / 3,
    "Fiscal Month Number", MONTH ( EDATE ( [Date], - FISCALMONTHSTART + 1 ) )
)
```

Step4: Create Data Model in Power BI Desktop:

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

Step5: Develop Reports in Power BI Desktop:

Use the Power BI Desktop application to create reports based on your data model. Add visualizations such as charts, tables, and maps to represent the data effectively. Apply filters, slicers, and drill-through functionalities to allow users to interact with the data.

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

Step6: Implementing DAX Calculations

We will use Data Analysis Expressions (DAX) to create calculated columns, measures, and calculated tables to perform complex calculations and aggregations. DAX is a powerful formula language that allows you to manipulate data within Power BI.

//Measures Total Sales

Sales = SUM(Sales_Data[Sales])

//Measures Previous Year Toal Sales

Sales PY = CALCULATE([Sales], SAMEPERIODLASTYEAR(DateTable[Date]))

//Diffrence 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])

Step7: Conclusion of Power BI Sales Dashboard Project

Conclusion for the year 2019:

- Sales decreased by more than 10%
- There is a drop in sales of all the top 7 Products
- 4 Customers are leading to a drop in sales
- The profit margin in the Export channel is higher