Power BI Workshop

**Data Preparation:**

I used Power query to Clean, Transform and Import the data to Power BI. Detailing the steps taken in Power Query to import, clean, and organize data from various sources. The preparation involved removing redundancies, adjusting data types, handling null values, splitting and creating columns, and appending tables to ensure a well-structured dataset for analysis.

**1.** **Data Loading**

- Sources: Imported data from multiple formats, including Excel, CSV, and a folder containing files.

- Initial Cleanup: Removed redundant columns (e.g., columns with identical information like “Country Name” and “Source Name” in the international sales data).

**2. Data Type Adjustments**

- Adjusted column data types wherever necessary, like converting the Zip Code column from whole number to text to preserve leading zeros which is important for accurate tracking.

**3. Query Renaming**

- Renamed queries (table names) in the Queries panel, ensuring each query (table name) is descriptive and easy to identify for the analysis.

**4. Null Value Handling**

- Null Filling: Used the "Fill" feature to populate missing values based on neighbouring cells(all rows in one column), such as filling nulls in the "Category" column (used Filling down) of the Product table.

**5. Column Splitting**

- Delimiter Splitting: Split the Product column by delimiter ( | ) to separate "Product Name" and "Product Segment," and renamed columns accordingly.

**6. New Column Creation**

- Created two new columns, MSRP and Currency, from the Price column. Each new column was first created by first adding a value in the first row, then Power BI automatically propagated to all other rows.

**7. Row Removal and Header Adjustment**

- Removed the first two null rows (which had unnecessary data) and set the first row as the header.

- Further adjusted data types for required columns (e.g., ensuring Zip Codes remained in text format).

**8. Data Transposition and Bottom Row Removal**

- Transposed data in the Manufacturing table for better alignment, removed unnecessary bottom rows, and set the first transposed row as column headers (as it made more sense).

**9. Table Appending**

- Appended the sales table to the international sales table, adding a “Country” column with null values to the sales table for consistency across datasets and added the country value accordingly.

**10. Query Dependencies and Finalization**

- Viewed and confirmed query dependencies, applied all changes, and closed Power Query to finalize the data preparation.

I have made all this steps with assumptions that while using the data further for analysis it will be easy to access it.

Steps Followed in Generating Visualizations

**Visualization 1: Creating the Total Revenue by Country Visualization**

**Objective**: Begin by visualizing the total revenue across all countries to identify high-revenue regions.

**Approach**: Used a column chart to display revenue aggregated by country, which includes data from all manufacturers.

**Outcome**: This visualization provided a clear, high-level view of revenue distribution across different regions, helping to identify top-performing countries.

**Visualization 2: Adding Manufacturer Breakdown to Revenue by Country**

**Objective**: Further break down revenue by country, with a focus on top competitors.

**Approach**:

Created a stacked column chart to represent total revenue by country with an additional layer of manufacturer details.

Grouped manufacturers into three categories: Top Competitors, VanArsdel, and Others for clearer analysis.

We can view the data as a table (right-click > "Show as Table") for exact numerical comparisons.

**Outcome**: This visualization allowed for a more granular analysis, enabling comparisons between the top manufacturers and other players across each country.

**Visualization 3: Generating a Treemap for Revenue by Manufacturer**

**Objective**: Make it easy to identify individual manufacturers’ revenue contributions visually.

**Approach**:

Created a treemap that displays revenue by manufacturer, allowing users to quickly see each manufacturer's share.

Applied a filter based on the manufacturer groups defined in Step 2, focusing on Top Competitors and VanArsdel, while excluding smaller competitors.

**Outcome**: This filtered treemap offers a simplified view, focusing only on major competitors, making it easier to track significant players in the market.

**Visualization 4: Visualizing Revenue Trends Over Time**

**Objective**: Analyze revenue trends over time to identify any seasonal or cyclical patterns.

**Approach**:

Used a clustered column chart with a date hierarchy (Year, Quarter, Month, Day) to visualize revenue over different time frames.

Enabled drill-down functionality, allowing users to move through different levels of the hierarchy for more detailed insights.

**Outcome**: This visualization enables stakeholders to analyze revenue fluctuations across time, providing insights into patterns that may influence strategic decisions.