Content

Data Importing, Transformation, Modeling & Exploration :

- First, checked the Dataset files as a general look to primarily detect the Fact Table.
  And noticed that the "Internet Sale" table file is most likely to be the Fact table.

- Started data Cleaning through Transformation before Loading, Removed some unnecessary columns with useless data, to have efficient process with exact Data Type.
  For example:
  → Changed Data Type of many columns (as in "Customer" table)
  → Changed Data Type from "Date/Time" To "Date" in tables as "Product",
  And made sure that all Dates in all tables are the same Format,
  So as to have clearer Relationship in the Model view.

- Made sure that the data type in Foreign keys are the same as one of the Primary key, to have consistent format that enables clear Relationships.

- Checked the Model view after Transforming and Uploading all Data tables, and made sure that all tables are logically linked in Relationships.
  And it's clearly shown that the "InternetSale" with stars is the Fact table.

- Continued to clean data by removing more columns that I'm now sure that are useless for me, as they shall not be used in my Analysis, and are also found not to be used in any relationships in Modeling view, which makes them not primary nor foreign keys to any of the tables.

Business Overview :

Overlooking the Data set tables, It's understood that the SalesAmount column does Not include any of Tax or Freight fees, because SalesAmount is found to be same as ExtendedAmount.
So the Tax & Freight fees are charged to the Customer separately, in addition to the Item price excluding tax & freight (SalesAmount),
so they (Tax & Freight) are better not be counted in Sales amount or Costs of the store.

It's generally noticed that Year 2014 does not include the data till end of year, since Quarter 4 for example is not included in Data, this can be because 2014 had not ended yet upon making this analysis.

- I held interaction of the Average of Profit Margin Ration, so that Filters on other Visuals would not affect it.

- Hierarchy in Calendar Years :
  Made Hierarchy for Dates to be able to Drill down and up through Calendar Years, Semesters, Quarters, months and days. This is to enable me to view more specific details.
  - It's found that Year 2014 has the highest No. of Orders (13K) among years and specifically the month of May day 1.

Power BI Page 3 :

Territory analysis :

Sales Territory Region VS Sales Amount are visualized using the TreeMap, which shows that Australia has a high record of Sales Amount compared to the other Regions, then comes Southwest Region in USA.

Using the Slicer, it's found that the Sales Amount of Australia alone is 2.5M in Year 2014. While upon adding Southwest region to Australia's sales ; Then both are found to have sales in 2014 of 4.5M.

Given the Total Sales in 2014 in All regions that's (9.7M), then this composes around 46% of the Total Sales is realized in the two regions of Australia and Southwest USA.

And in general, Australia & Southwest regions make together 14.79M Sales over the years, which is around 50% of Total Sales over years among all regions (29.36M).

Power BI Page 4 ;

Products analysis :

- $ 7.93M is the Sales of Model Name "Mountain-200" using filtering. Which indicates that it makes 27% of Total Sales among all Model Names, "Mountain-200" is one of the Most selling Model Names in our online store.

Power BI Page 2 ;

Customer analysis :

Age :

- I'd like to visualize and Analyze the Age groups of the Customers, so I used the Birthdates to get the Customers' Age by 2014.
- I grouped Ages of customers as below, and it's found using Donut chart that the highest Sales are made by the Age Group of "Middle-aged Adults" aged (45-59), their purchases make around 52% of the Total Sales of all age groups.

  Age <35 are "Youth"
  <45 are "Young Adults"
  <60 are "Middle-aged Adults"
  Otherwise are "Old Adults"

Number of Cars owned:

- Percentage of Sales Amount formed by the Customers based on the Number of Cars ; are found to be close values for the Top 3 highest percentages.
  But as a Conclusion, it's noticed that the customers without any Car plus the customers with 1 Car ; they form together 54% of the Total Sales of all customers.
  So it's a higher percentage than customer with 3 or more Numbers of Cars – among the years.

Commute Distance:

- Analyzing Sales Amount relation with customer Commute Distance using Donut chart; it's found that the highest Percentage of Sales Amount is formed by customers with least Commute Distance (0-1 miles) forms 38% of total sales – over years.
- Which indicates that customers tend to buy Bikes for example (most sold item) to ride for their Short reasonable Commute Distance.

Upon analyzing the Sales, based on Marital status and based on Gender ; it was found to be very close percentage of Sales. Therefore nearly similar shares of Sales amount for Male/Female and for Married/Single. So it's visuals were disregarded to provide space for other visuals.

Busines Questions (5 Qs):

(1) What's the Growth rate from 2012 to 2013 ?
Also What's the Profit Margin Ratio ?

- Profit Margin Ratio when calculated is found to be 53% on average
- The Growth rate from Year 2012 to 2013 ; is found to be around 50% , which indicates that Sales Amount has remarkably increased in Year 2013 than 2012.

(2) What were our expenses last quarter of 2013 ?

- Since Tax and freight fees are charged to the customer directly, and he bears these costs ; so we will not include them in the Expenses calculation of costs.
- SO expenses in 2013 are $ 2,351,732 based on Total Product Cost

(3) What is our largest customer Segment ?
What's his profile ?

- Largest customer segment based on analyzing customer data, details mentioned in Page 3* ;
  has generally the profile of :
  - Middle-aged Adults (45-59 years-old),
    having 0-2 Cars owned,
    and without Children,
    their Commute Distance is considered shorter (0-1 Mile); which is considered a reasonable short distance to ride a Bike – the Best selling product in our store.

(4) What's our most Sold item in Year 2014 ?

- Details mentioned in Page 3* ;
  "Mountain-200" is one of the Most selling Model Names in our online store,
  And Bikes specially Road bikes and Mountain bikes are generally best selling products over years.

(5) What's the purchasing Trend throughout Time ,
What time of the year had the highest Number of Orders ?

- Details mentioned in Page 2* ;
  It's found that Year 2014 has the highest No. of Orders (13K) among years and specifically the month of May → Day 1 that was a Thursday.

Findings :
Insights and Recommendations

Sales Trend through Time, and a noted Tip to the Management :

- It's noticed that specifically of Year2014 ; the month of May day 1 that was a Thursday had the highest Number of Orders.
  This indicates that a boost happened in this specific Timing, which means that the Marketing campaign done in this period of the year was the most successful,
  Or that the Salesforce on board during this period were more successful this time.

  Exact reasons should be analyzed by management, and the above is my view.

- It's recommended to increase Advertising, promotions and Marketing Campaigns before this Timing, to further increase Sales.

Products Selling pattern and Commute Distance :

- Upon visualizing, it's found that the Product Subcategory of "Road Bikes" has the highest Sales of all Subcategory products – over the Years. It's Sales is around 14.52M from the Total Sales of all Subcategories (29.36M). So it makes 49.4% of the Total Sales among all Subcategories.
- While for Year 2014, the Product Subcategory of "Mountain Bikes" is the best selling.
- Customers with short Commute Distances (0-1 miles) form 38% of total Sales amount – over years.
  Which indicates that customers tend to buy Bikes for example (the most sold item) to ride for their Short reasonable Commute Distance.
- Recommendation is to increase the Advertising in the Accommodation Areas that are close to vital destinations within a Distance of 0-1 Mile.

Customers

Age :

As per details mentioned in Page 3* ;

- The highest Sales are made by the Age Group of "Middle-aged Adults" aged (45-59), their purchases make around 52% of the Total Sales of all age groups.
- So recommendation is have the Marketing campaigns and Ads to be Targeted to this Age group, through different media like Facebook and other social media that enables to target by Age.

Cars :

- As a Conclusion, it's noticed that the customers without any Car plus the customers with 1 Car ; they form together 54% of the Total Sales of all customers.
  So it's a higher percentage than customer with 3 or more Numbers of Cars – among the years.

- It can be concluded an Inverse Correlation between the No. of cars owned by the customer and the Sales amount they form. Which means we can almost say that : As the Number of Cars owned by customer increases , the Sales they form decreases.
- Recommendation is to have the Marketing campaigns and Ads to be Targeted to the Customer with the least or without any Cars, this shall be a more successful campaign that should increase Sales amount, as these customers have higher potential to buy our products.