Background and context

2Market, a global supermarket, trying to boost its revenue through customer engagement by understanding purchasing behaviour. This report will offer insights into the effectiveness of various marketing channels and sales trends across demographics like age, income, and country. Using the 'MECE framework' (Yu, 2022), the report will comprehensively explore all data scenarios to aid 2Market in making informed, data-driven decisions.

The three main aspects the report will cover will be answered by the questions below:

1) What is the most effective advertising channel?
2) Relationship between the total Income and Customers with successful lead conversions and how it impacts 2Markets Revenue.
3) Relationship between Successful Lead Conversions of Advertisements and Country Impacts 2Markets Revenue.

Analytical Approach

Excel was used to clean all raw data from the 'Marketing' and 'Advertisement' data files. There were various new fields created to make it easy to create graphs using tableau:

1) A new column for 'Age' was created by using the "=SUM minus" function. Year of Birth was subtracted from 2024. There were three outliers identified with ages over a hundred- therefore they were removed.
2) Additionally, new columns for 'Total Revenue,' 'Average Revenue,' 'Total Children,' 'Total Income' and 'Total number of products' were created for easier visualisation.
3) Marital status had some errors. For example, the term 'YOLO' was replaced with #N/A as it's not possible to conclude their marital status. Additionally, the term 'alone' was edited to 'single' to keep to the format of the other data. Lastly, there was one data 'absurd' which row was completely removed.
4) All abbreviated country names were kept the same as Tableau can read them, except for 'SA' which was changed to South Africa so that Tableau did not get mixed up with 'Saudi Arabia.'

Some examples of some of the basic data that Excel helped to offer, along with a broad interpretation of the data:

- 2,213 Customers
- Average Age 54.1
- Average Income $52,237

Pivot tables were used to summarise and show trends between different data. For example, Figure 1 illustrates, the relationship between age and income. At first there were a few outliers. Therefore, to make the data more credible the outliers were removed, and a line of best fit was drawn (Figure 2). The slope slides from left to right which suggests that income tends to increase with age. Moreover, using pivot tables early on helped to provide general insights about relationships within the data.

SQL was used to query the 'Marketing' and 'Advertisement' datasets to analyse the relationship between total income and customers with more than zero lead conversions. Figure 3 shows the query used to filter these high-engagement customers:

1) Joined the Marketing and Ad data to the customer ID column.
2) The results were filtered to only include customers who have more than zero lead conversions.
3) It selected the Customer ID, Lead conversions and Income for the high engaging customers.

The results were then saved onto a new table where it could be visualised in Tableau. The conclusion from this query showed how targeting higher income customers ($60,000+) showed more lead conversions than lower income customers. This then helped in being able to give recommendations to 2Market.

Tableau Dashboard

The Dashboard design is to help inform business decision makers on what the next steps are to take to improve the total revenue of their business.

Features of the dashboard:

1) The colour chosen was blue as it's a neutral colour that portrays clarity to the stakeholder. The lighter shade of blue represented 'less' and the darker shade of blue illustrated 'more'.
2) Headers, tooltips, and dimensions were used on the chart for more detail about the data.
3) Bar charts and scatter plots were used to show relationships and differences between different demographic factors and revenue.
4) Bar charts were mostly used as they are simple to read and draw conclusions from (Eric Hehman 2021).
5) Interactivity was used to make it easy for the user to see the data for exactly what they want. For example, if Germany was clicked on the map, then only statistics for Germany would show on the other graphs.

Key Insights

Facebook is the most successful advertising channel (Figure 4). The ad with the highest conversion rate was used to measure this because it is what brings in revenue for the business. Instagram came in second with 136 conversions, while Facebook had 292. Brochure was the least effective with only 1 lead conversion proving that it is not the way 2Market should advertise their products.

When exploring the total income of the customers and lead conversions it was apparent that higher income groups ($60,000+) showed more lead conversions rather than lower income

groups (Figure 5). There was a positive trend with having a higher salary and more lead conversions. Therefore, the customers with high income generate the most revenue.

Lastly, the relationship between country and successful lead conversions illustrated that Spain, Canada and Germany had the highest lead conversions. Australia and India had the lowest (Figure 6). However, figure 6 also shows that the bubbles which are the biggest have more customers overall. Therefore, 2Market may need to consider that countries like Spain have successful lead conversions as they have more customers to target than countries like India.

Recommendations

1) Advertise Alcohol as this is the most popular product and reduce costs on advertising vegetables as they are the least popular.
2) Target advertising at higher income groups.
3) Target advertising to Spain, Canada and Germany as they are high conversion rate countries.
4) Expand customer bases in low conversion countries as 'number of customers' also matters.
5) Reduce costs of advertising using Brochure method as it only had 1 successful conversion.

Conclusion

In conclusion, to boost revenue, 2Market should prioritize Facebook and Instagram advertising, which have the highest conversion rates. Focusing on high-income groups and high-conversion countries like Spain, Canada, and Germany will maximize returns. Additionally, reducing investment in ineffective channels like brochures and promoting popular products such as alcohol will enhance overall revenue growth.

Appendix

Figure 1 (With Outliers)

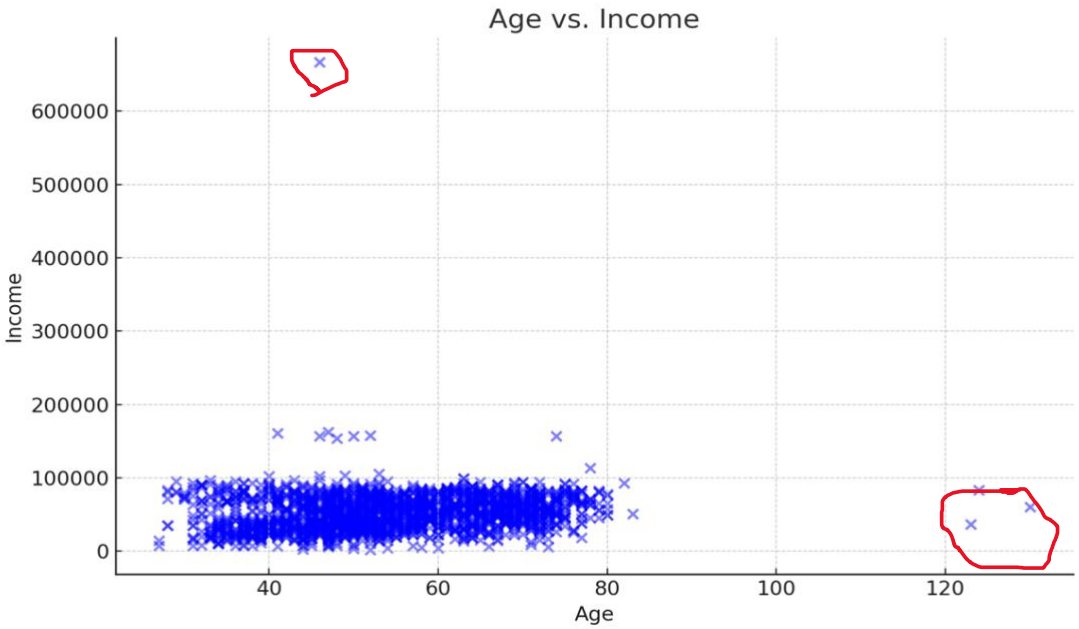


Figure 2 (Without outliers and line of best fit)

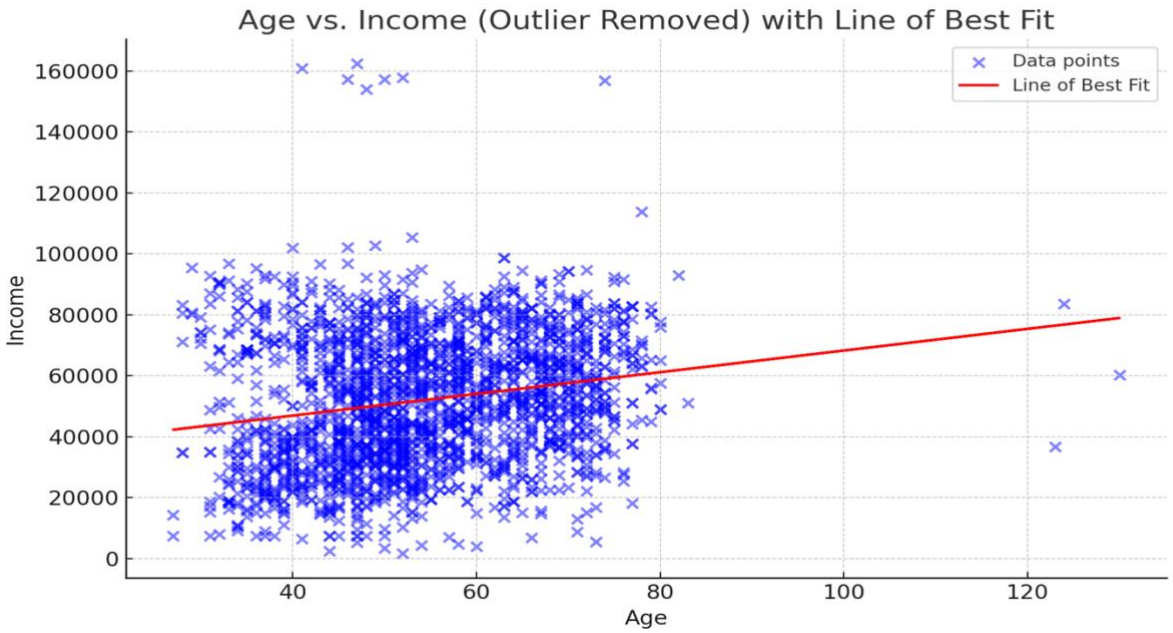


Figure 3 (Query tool)

```
61  SELECT SUM(m.Income) AS Total_Income, COUNT(m.CustomerID) AS Num_Customers
62  FROM Marketing_Data_TV_CLEAN m
63  JOIN ad_data_TV a ON m.CustomerID = a.CustomerID
64  WHERE a.Lead_Conversions > 0;
```

Figure 4 (Successful Advertisements)

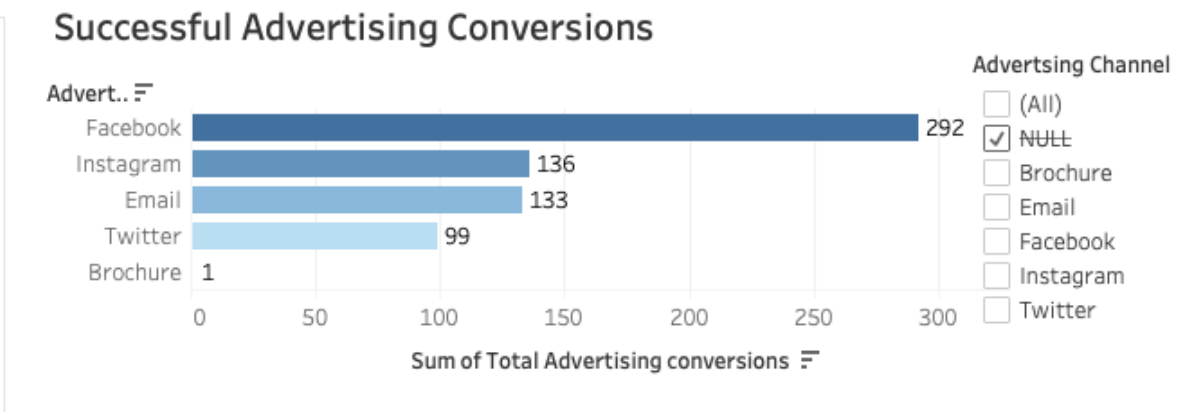


Figure 5 (Total income and customers)

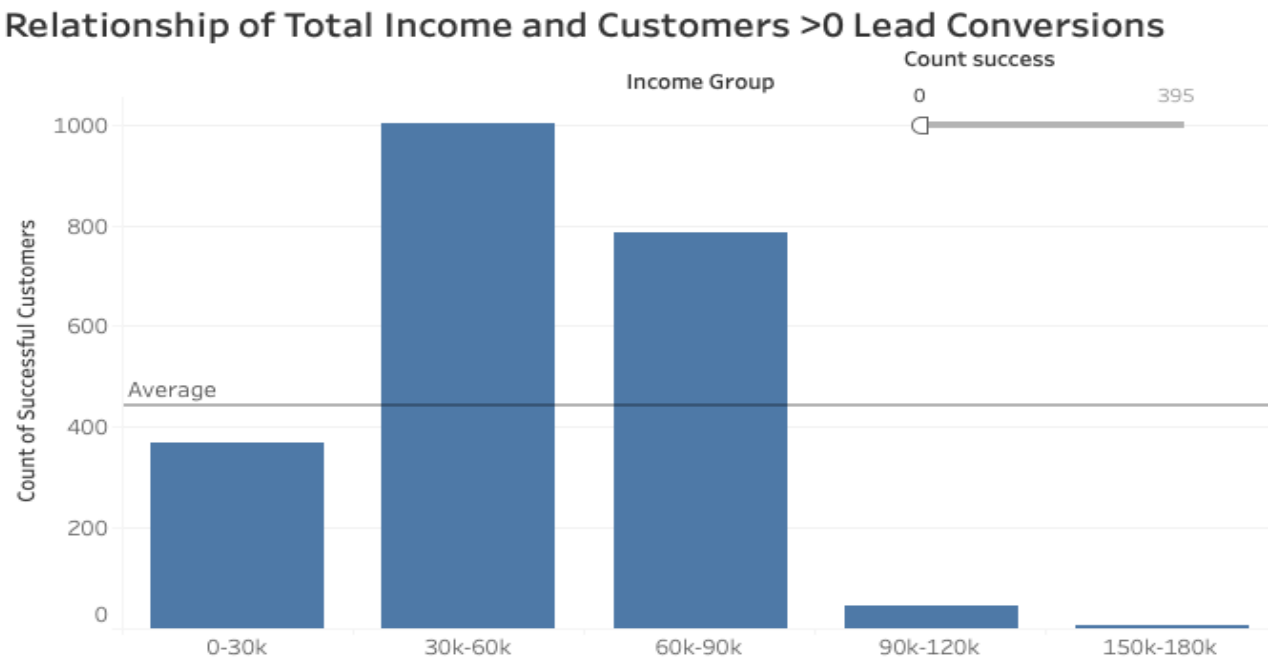
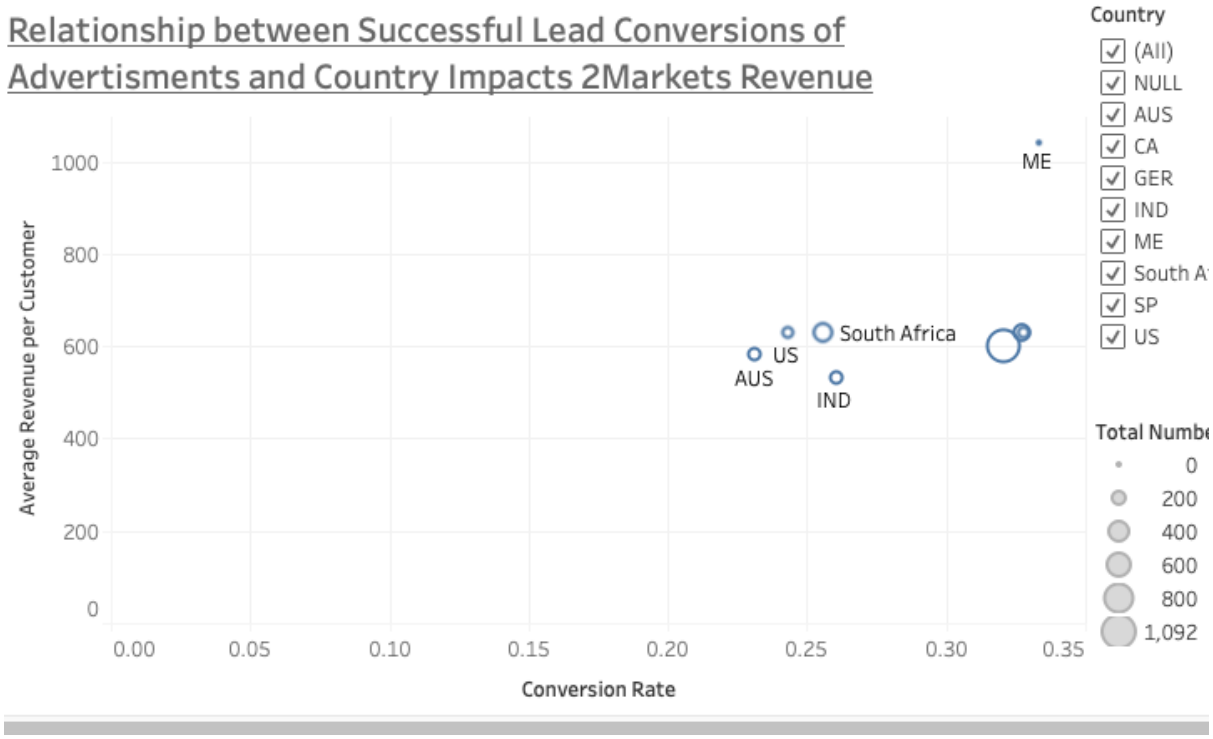


Figure 6 (Country and lead Conversions)



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2) Wei, (2022) 'Meta-analysis of RNA sequencing data reveals high genetic correlation between major depressive disorder and schizophrenia', *Nature Neuroscience*, 25(2), pp. 208-216. Available at: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9602580/ (Accessed: 23 June 2024).