



# 2MARKET

Analysis & Insights

Asaf Rubin  
12 December 2022

## **Background/context of the business**

2Market is a global supermarket which sells products online and in-store. 2Market wants to understand their customer purchase behaviour across four dimensions: 1) customer demographics, 2) advertising channel effectiveness, 3) which products sell best, and 4) if and how product sales vary by demographic.

The following four steps were used as a framework for this analysis:

- 1) Identified the problem: a lack of knowledge of 2Market's customer purchase behaviour
- 2) Defined the goal of drawing relevant conclusions from the data
- 3) Exploratory analysis undertaken
- 4) Anticipation of the outcomes and resultant actions required
- 5) Looking back, or reflecting and if necessary, re-iterating.

## **Analytical approach**

Raw data was cleaned using Excel. Data was checked for missing values, duplicates and outliers. A new field 'Age' was created by subtracting customer year of birth from current year. Outliers were identified and removed. Analysis revealed the following:

- Average customer age: 52. Marital status and age was plotted on a bar chart, showing the highest average age for Widow (62) and lowest for Absurd (46).
- To analyse distribution of income, a histogram was generated and used to create a new field 'income band', allowing income to be plotted as a categorical variable. Plotting income band against age on a bar chart shows a normal distribution where income increases with age.
- A scatterplot of the relationship between age and customers earning between \$90 - \$100,000 that income shows that income also increases with age amongst higher income customers.

Data was also analysed with SQL. A new database was created in Postgres and two tables were imported and analysed from the data provided to produce the following conclusions:

- Aggregating data shows that Spain produced the highest total sales, Montenegro the lowest. This is true across all product types.
- Combining tables produced a view of total sales amounts of each product in each country. Spain has the highest total sales for each product, Montenegro, the lowest.
- The same approach also provides a view of the most popular product by marital status, and presence of children or teens in the home. Liquor is the most popular across each marital status and for households with children and teens.

SQL was also used to calculate advertising channel effectiveness:

- 2Market spent most on Instagram, followed by Facebook, Twitter, Bulkmail and Brochure.
- The trend of advertising expenditure matches revenue generated by country: Spain the highest, Montenegro the lowest.
- The trend also reflects advertising channel effectiveness in terms of revenues: Instagram being the most effective, brochure the least.

## **Dashboard design and development**

The 2Market dashboard includes three visualisations, each of which were selected for simplicity and ease of navigation to provide insights into 2Market's customer demographics, sales trends and advertising platform effectiveness. A basic blue, white and white colour palate was used to ensure readability and captions are included to provide additional relevant information.

The first stage in the process was the design of a prototype (in an offline sketch) showing the relationships between key variables and ensuring clarity, appropriateness and breadth and depth of information provided.

In the second stage, worksheets were built in Tableau to examine the relationships between customer demographics and product sales. These were then plotted on a dashboard, specifically:

- 1) An interactive map showing the locations of 2Market's operations. Hovering cursor over each country shows further details for that market, including average age, number of customers and median income. Clicking on a country will filter the rest of the dashboard.
- 2) A histogram showing income distribution
- 3) A modified box-and-whiskers plot showing average age
- 4) A bar chart showing the total sales of each product, which can also be filtered by age group.

In the third and final stage, data on advertising effectiveness was added to the dashboard. A bar chart showing the number of customer conversions by advertising type is now visible, and can be filtered by variables on the dashboard.

The dashboard is organized so that viewers can read the charts and data from left to right, starting with an overarching, global view of 2Market's customer based, with customer-specific details on the right-hand side and finally, sales and advertising details in the bottom half of the dashboard.

**Patterns, trends, and insights (200 words): Clearly articulate any patterns, trends, or insights you discovered. Ensure they relate to the business scenario. Include recommendations on any areas for further exploration.**

### **Patterns, trends and insights**

2Market is interested in three key issues: 1) customer demographics, 2) product popularity, and 3) advertising channel effectiveness. The relationships between these three variables will help inform 2Markets' decision-making.

**Customer demographics:** 2Market operates in 8 countries around the world, with a total 2205 customers. The average 2Market customer is 52 years old and has a median income of \$51,287. Spain has the highest customer count with 1089 customers, Montenegro the lowest with 3. Customers in the USA have the highest median income at \$55,718, India the lowest at \$48,432. 39% of customers are married, the largest group by marital status. The majority (57%) have no kids, nor teens at home.

**Products:** Liquor is 2Markets' most lucrative product, with highest sales in Spain. Vegetables have generated the least amount of revenue.

**Advertising:** 2Market spent the most on Instagram advertising, followed by Facebook, Twitter, Bulkmail and brochure. Excluding Montenegro, where 100% of advertising is Bulkmail, Instagram is the most effective channel. Each customer 'converted' by Instagram spends an average of \$102.71.

Assuming 2Market's objective is to increase profits, it could consider:

1) Increasing revenues:

- Focus on high potential geographies where customers have higher median incomes, are married and do not have children or teens at home
- Promote sales of liquor and non-vegetables
- Continue Instagram, Facebook and Twitter as advertising channels

1) Reducing costs:

- Exiting markets with small customer bases
- Ceasing sales of chocolates and vegetables
- Cutting brochure and bulkmail