

# Assignment: Exploratory analysis and presenting insights

LSE\_DA101\_Data Analytics for Business\_C3\_2023

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

The business problem is to gain a comprehensive understanding of 2Market's customer purchase behaviour. To solve this problem, these questions must be answered:

#### **Demographics of Customers:**

What are key demographics of our customers?

Are there any significant demographics that stand out, and do they exhibit unique buying patterns?

#### **Effectiveness of the Advertising Channels:**

Which advertising channels are increasing the most visits to the website?

Can we identify customers segments that are more responsive to specific advertising channels?

#### **Product Sales**

What are the best-selling products?

Do certain demographics show a higher affinity for specific product categories?

### **Analytical approach**

I followed a systematic approach that involved data cleaning, exploration, and analysis. I began by importing the "market\_data.csv" dataset into Excel. I carefully assessed the dataset for any missing values, duplicates, and outliers. I used Excel's filtering and sorting tools to identify and highlight inconsistencies and missing data points. I also looked for any data entry errors, such as typos or incorrect formatting.

When confronting missing data, I decided to remove the rows that were affected. In addition, data with significant deviation was also removed from the data set (e.g., A user's year of birth being 1892, which in context of the data would make them 122 years old and the oldest person to have ever lived). The choice depends on the nature of the data and its impact on the analysis, such as keeping "YOLO" as a marital status to see whether purchasing behaviour would be different to other marital statuses.

After cleaning the data, I calculated basic descriptive statistics using Excel functions like COUNT, AVERAGE, MIN, and MAX. This helped me get an initial understanding of possible trends and data that strayed from the norm. I also created various visualizations such as bar charts and pivot tables to visually explore the data. For example, I used a bar chart to compare year of birth and marital status to see if there were any possible trends. Throughout this analysis, I looked for unexpected patterns or outliers. If any anomalies were identified, I further investigated them to understand their significance and potential implications.

Overall, Excel provided a platform to clean and analyse the data, allowing me to obtain valuable insights into customer demographics, advertising channels, and product sales. Excel's data manipulation and visualization capabilities were essential in this process, enabling me to make data-driven recommendations and provide plans and ideas of what to include in the dashboard.

### **Dashboard design and development**

In designing and developing a dashboard in Tableau for 2Market, I focused on creating a user-friendly and informative interface for stakeholders that would assist in easy exploration of key metrics and insights.

#### **Visualisation Type:**

I used a mix of visualisation types, including bar charts for customer numbers, simple tables for amount of product sold, and using geographic maps for customer numbers by country. The choice of visualization type was driven by the nature of the data and the specific questions looking to answer.

#### **Colour:**

I chose a varied colour palette throughout the dashboard to clearly identify different measures. For example, I used 6 unique different colours when creating number of products sold so that when users look at the graph it is clear to see trends and which products are being shown. In addition, colour was used in the navigation so that the user can clearly see which data they are currently looking at and makes navigating between different dashboards easier.

#### **Size:**

I decided to create 3 unique dashboards, each focusing on a different area of the data, that way I have a sufficient amount of space to correctly size the visual elements to be easy to read for the user. I also made an active decision to make large visual elements take up at a minimum half the dashboard, this is so the visual elements are easy to read.

#### **Interactivity:**

I incorporated interactivity through filters and user actions. For the bar charts in products, you can filter the charts by country to focus on individual countries or make comparison between two or more countries. In addition, a navigation tool was used at the top of all dashboards so that the user can quickly find what type of data they want to look for (Demographic, Advertising or Products).

#### **Accessibility:**

Accessibility was a top priority. All bar charts where comparisons between data was being made had a clear colour difference and gradient colours were avoided. This is so those who find it difficult to see different gradients of colours can clearly see the difference between different data. In addition, all data on the table is marked with

its value so that it can clearly be labelled. All visual elements in this table are sized to be large so that those with sight issues can clearly see the data.

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

#### **Demographic**

The most common group that uses 2Market is married users with a graduation educational qualification. With this in mind, to increase successes in advertising have the adverts focus in on the married group, giving offers such as meals for 2, date night meals offer and mainly adverts and promotion focusing in on the married users.

#### **Advertising**

When looking at the comparison of in-store and online purchases, we see that in-store purchases are consistently higher than online purchases. This can suggest that online advertisements are not bringing in the expected number of users to the online platform but instead users still prefer to shop in-person. This is only inferred however as we only see one year's result, so seeing a comparison of a different year's result could show an increase or decrease in web use.

Spain has the highest count of ads used compared to other countries. This correlates with a higher number of users using 2Market as Spain has the highest number of customers compared to other countries.

#### **Products**

The most common product sold by 2Market is alcoholic beverages. All countries have the highest product sold being alcohol. To increase users on the online platform, possible have offers exclusive to online purchases.

An interesting trend noticed was Montenegro had a significantly higher average spending on alcoholic beverages compared to all other countries, being almost 200 higher than the average. To increase customers in Montenegro, have advertising focused on alcoholic beverages.