Market Segmentation

Market segmentation is the process of dividing a big target market into smaller group of consumers with some similarities like goegraphy, needs, behaviour etc.

The task is divided among the team below:

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Step 1: Deciding (not) to Segment:

While making segmentation we have to keep some points so that we can make segment effectively.

- The author compares segmention with marriage rather than a date, it is because market segmentation is a long term process. If organization has patient and have a long time goal then go for segmentaion else not.
- Segmentaion requires changes, if the organization is ready for big changes then go for segmentaions else avoid.
- There are some cost for performing research and survey. If the organization is financially strong then segmentation should be successful.

Step 2: Specifying the Ideal Target Segment:

There are some standard criteria we should follow to make an effective segmentation. We have keep some points while making segmentation.

Knock-out criteria:

- All the members inside a segment/group must be homogenous/similar.
- Members from one segment must be dissimilar from the members of another segments.
- Segment should be large enough so that the generated profits should be greater than the expenses in making segmentation.
- Segmentaion must be matching the organization’s strength, so that organization have the ability to satisfy members’ needs.

- Members of the segmentaion must be identifiable so that organization can spot them int the market place.
- There must be a way to get in touch with the members of the segment.

Attractiveness criteria:

In addition to knock-out criteria also assign some attractiveness score to each segment based on how useful the segments are. For example : There are 4 segments where organization generates 40% of profits from segment two and 30% from segment four then we may assign a attractiveness score for segment One = 15, segment Two = 40, segment Three = 15 and segment Four = 30.

Step 3: Collecting Data

Data collection is most difficult part for any organization there are some way organizations use for data collection.

- **Survay Data:** Most of the organizations use survey data for market segmentation because survey data is cheap and easy to collect. But survey data can have a wide range of biases.
- **Internal Data Source:** Increasingly organizations have access to large amount of internal data that can be used for market segmentation analysis. It is easy to collect and use, represents actual behaviour of the customers.
- **Data from Experimental Studies:** This kind of data can be collected from research laboratory experiments. For example how customers reacts to a certain advertisements.

Step 4: Exploring Data

Steps to perform after data collection:

1. Identify the measurement levels of the variables.
2. Investigate the univariate distributions of each of the variables.
3. Assess dependency structures between variables. In addition, data may need to be pre-processed and prepared so it can be used as input for different segmentation algorithms.

Data Cleaning:

1. Checking if all values are recorded correctly.

2. Cleaning should be done in a way that it can be reproduced in future.

Descriptive Analysis:

1. Being familiar with data avoids misinterpretation of result.
2. For Numerical data – Histogram, Boxplot and Scatterplot.
3. For Catagorical data – Bar plot.

Preprocessing:

Two pre processing procedures are often used for categorical variables:

1. Merging variables of categorical variables.
2. Converting categorical variables to numerical ones.

PCA (Principal Component Analysis) for **Australian travel motives** data set:

- PCA transforms a multi variate dataset containing variables to a new dataset with variables which are uncorrelated and ordered by importance.
- The first Principal Component contains the most important variables.
- The second Principal component contains the second most important variables, and so on.
- The transformation obtained from principal components analysis is used to project high-dimensional data into lower dimensions for plotting purposes.
- These standard deviations reflect the importance of each principal component.
- Highly correlated variables will display high loadings on the same principal components, indicating redundancy in the information captured by them.

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Step 5: Extracting Segments

In this step we will learn some famous clustering algorithms K-Means, Hierarchical clustering etc used for making segmentations.

K-Means: It is a distance based clustering algorithm which initiliazes K number of points then computes distance of each observations from each points then assing cluster labels to each obeservation which is nearest to K point again compute mean of the cluster and shift the point to the mean of the cluster and repeats process untill find best clusters.

Heirarchical Clustering: These methods are most intiutive way of grouping data because they mimic how human would approach the tast of dividing a set of observations into k groups. Hierarchical clustering can be divided into two types, Agglomerative and Divisive.

Agglomerative clustering is that where select 1 point as a cluster then merge it with the nearest point and so on. Divisive clustering is that Where entire points are treated as one single cluster then break that cluster based on dissimilarities again and again.

Linkage Methods used in Hierarchical Clustering:

Single linkage: In this method nearest points from two clusters are selected for distance calculation. Single linkage is useful when there is very less noise in the dataset.

Complete linkage: In this method farthest points are selected for distance calculation.

Average linkage: Mean disctance is used between observation of two sets.

Step 6: Profiling Segments

- Profiling is only required in data driven market segmentation where the characteristics of market segments are not predefined. Data-driven segmentation requires analyzing data to identify key characteristics of each segment. Profiling is essential for understanding and differentiating these segments, which helps in making strategic marketing decisions.

- Data driven segmentation solutions are presented to the users in one of the 2 ways, as high-level summaries simplifying segment characteristics and as large tables that provide, for each segment, exact percentages for each segmentation variable. But interpreting these tables can be complex and tedious.

- It also highlights the importance of using graphical visualizations in market segmentation analysis, as they offer clearer insights than the tables. They are also used in EDA as they can interpret the segment profiles and help us to understand complex relationships.

- To identify the defining characteristics of market segments, we use segment profile plot. It shows for all segmentation variables how each market segment differs from the overall sample.

- To visualize the segment separation, we use segment separation plot. These tools are used to visualize the degree of overlap between market segments across various dimensions of the data. They help the data analysts and users assess the effectiveness and clarity of the segment differentiation.

Step 7: Describing Segments

Market segmentation is a foundational concept in marketing, allowing businesses to categorize a broad customer base into smaller, more manageable groups or segments. Each segment typically exhibits similar needs, preferences, or behaviours. After the initial identification of these segments, it is crucial to describe them thoroughly to ensure effective targeting and positioning. In the market segmentation process—Describing Segments—focuses on this detailed examination.

Objective: The primary goal of it is to provide a comprehensive understanding of each segment by utilizing additional variables, referred to as descriptor variables. These variables are critical for differentiating segments and painting a detailed picture of the characteristics that define each

group. The insights gained from this step allow businesses to tailor their marketing strategies, ensuring that they align with the specific needs and preferences of each segment.

Understanding Descriptor Variables: Descriptor variables are the attributes that were not initially used to create the segments but are now applied to describe and distinguish them further. These can include:

- Demographics: Variables such as age, gender, income, education level, and family size. These are often the most straightforward descriptors but are fundamental in defining who the customers are.
- Psychographics: This category covers the lifestyles, values, attitudes, and personality traits of customers. Psychographics provide deeper insights into why customers behave the way they do and what motivates their purchasing decisions.
- Behavioural Factors: These include purchasing habits, brand loyalty, usage rates, and benefits sought from products or services. Understanding these behaviours helps in tailoring marketing messages and offerings.
- Geographic Information: Location-based data can be a powerful descriptor, particularly when regional preferences or needs are significant.

These variables are used to create a vivid, multidimensional view of each segment, going beyond the basic clustering performed in earlier steps.

Methodology for Describing Segments: To effectively describe the segments, the document suggests a combination of statistical analyses and visual tools:

1. Descriptive Statistics:
    - Mean, Median, Mode: These central tendency measures provide an overview of the typical customer within a segment. For example, calculating the average income level within a segment can help marketers understand the purchasing power of that group.
    - Standard Deviation and Range: These measures of variability give insights into the diversity within a segment. A segment with a wide range of income levels might require a more nuanced marketing approach than one with a more homogeneous income distribution.

2. Inferential Statistics:
    - Hypothesis Testing: Inferential statistics are employed to test hypotheses about the differences between segments. For instance, marketers might test whether the average age of one segment is significantly different from another. This helps confirm that observed differences are not due to random chance.
    - Significance Testing: Techniques such as t-tests, ANOVA, or chi-square tests are used to determine the statistical significance of differences between segments. This ensures that the distinctions being made are meaningful and reliable.

3. Visualizations:
    - Bar Charts: These are used to represent the frequency or percentage of different attributes within a segment. For example, a bar chart might show the distribution of income levels across different segments.
    - Mosaic Plots: These plots are particularly useful for displaying categorical data across multiple dimensions. They can visually represent the relationship between descriptor variables and segments, making it easier to spot patterns or significant differences.
    - Pie Charts and Histograms: While less emphasized, these tools can also be used to display data in a way that is easily interpretable by marketing professionals.

Visual representations are crucial because they simplify complex data, making it more accessible for decision-makers. Marketing managers often prefer graphical data as it allows for quick comprehension and more informed decision-making.

Practical Application in Marketing Strategy: Once the segments are described in detail, businesses can use this information to develop a customized marketing mix for each segment. The marketing mix—comprising product, price, place, and promotion—can be adjusted to better meet the needs of each group. For example:

- Product: The features and benefits of a product might be highlighted differently depending on the segment's preferences and needs.
- Price: Pricing strategies can be tailored based on the income levels and price sensitivity of each segment.

- Place: Distribution channels might be chosen based on the geographic locations and purchasing habits of the segments.
- Promotion: The messaging and communication channels used in marketing campaigns can be customized to resonate with the values and lifestyles of each segment.

The document also highlights the importance of not over-interpreting the data. It is easy to fall into the trap of focusing on minor or statistically insignificant differences that do not materially impact the marketing strategy. Marketers are advised to concentrate on differences that are both statistically significant and practically meaningful.

Conclusion: It is a vital part of the market segmentation process as it transforms raw segment data into actionable marketing insights. By thoroughly describing each segment using additional descriptor variables, marketers can gain a deeper understanding of their target audiences. This understanding enables the development of highly targeted marketing strategies that are more likely to resonate with customers, thereby increasing the effectiveness of marketing efforts and ultimately driving business success.

The careful application of statistical analysis and the use of visual tools ensure that the segment descriptions are both accurate and easily interpretable. This step ensures that the segmentation analysis does not remain an abstract exercise but instead leads to practical, data-driven marketing strategies that can be implemented to achieve tangible business results.

Step 8: Selecting The Target Segment(s)

The selection of one or more target segments is a long-term decision significantly affecting the future performance of an organisation.

After a global market segmentation solution, a number of segments are available for detailed inspection. These segments are profiledby inspecting their key characteristics in terms of the segmentation variables in Step 6 (Profiling Segment), and described in Step 7 (Describing Segment).It would have become obvious in Step 6 if a market segment is not large enough, not homogeneous or not distinct enough. It would have become obvious in Step 7 – in the process of detailed segment description using descriptor variables – if a market segment is not identifiable or reachable. And in both Steps 6 and 7, it would have become clear if a market segment has needed the organisation cannot satisfy.

In Step 8, one or more of those market segments need to be selected for targeting. The segmentation team can build on the outcome of Step 2. During Step 2, knock-out criteria for market segments have been agreed upon, and segment attractiveness criteria have been selected,

and weighed to reflect the relative importance of each of the criteria to the organisation.The first task in Step 8, therefore, is to ensure that all the market segments that are still under consideration to be selected as target markets have well and truly passed the knock-out criteria test.

Step 9: Customizing the Market Mix

- The concept of marketing mix which is defined as the 4P's (Product, Price, Place, and Promotion) plays a crucial role in developing market segmentation strategies. It is also aligned with other strategic marketing areas like positioning and competition.

- Once target segments are identified, the marketing mix can be customized to these segments. This may involve designing new products, adjusting pricing strategies, selecting appropriate distribution channels, and crafting targeted promotion strategies to maximize the benefits of segmentation.

- When developing the product aspect of the marketing mix, one key decision is to modify an existing product to meet the specific needs of the target segment.

- The key decision in place dimension is how to distribute the product to the customers. It involves asking multiple questions like should the product be available online or offline, should a manufacturer directly sell to the customers etc.

- Typical promotion decisions include developing an advertising message, identifying the most effective communication channels for the message, and utilizing tools such as public relations, personal selling, and sponsorship.

Github Links:

Md Ismail Quraishi: https://github.com/mdismailquraishicse/McDonaldCustomerSegmentation

Riyan Khan: https://github.com/Alriyan1/McDonald-Segmentation.git

Krish Bhimani: https://github.com/KrishBhimani/Fast-Food-Market-Analysis-CaseStudy

Asad Ahmad Mohammad Soeb: https://github.com/asadintwala/My-Projects