

Dinesh Sivakumar (Solo Project)

Market Segmentation: It is a decision making tool used by a marketing manager to identify the target market for a specific product. This tool helps in dividing a broad target market into smaller groups based on similar characteristics, needs or behaviors. With the help of market segmentation, companies can deploy appropriate marketing strategies for each segments to maximize the marketing efforts and profits.

Step-1: Deciding or Not Deciding to Segment

- A company should commit to market segmentation only if the segmentation process yields more profitable results than a marketing strategy without one.
- The company should carefully consider all the other factors such as costs, developing new products for each segment, changes in pricing, distribution channels, changes in internal structure of organization before committing to market segmentation.
- A company opting for market segmentation usually indicates long term organizational commitment and most often it is decided by executive level management team and then should be properly communicated with other lower levels of management.
- One of the barriers encountered while implementing market segmentation is the approval of this plan by Chief Executive. If the Chief Executive lacks leadership, involvement, commitment or reduces the resources available for market segmentation, then senior marketing executive will not be able to perform a sound market segmentation strategy.
- Another barrier encountered is organizational culture. Factors such as lack of communication, short term thinking, unwillingness to change, lack of new ideas etc. can affect market segmentation.
- Only properly trained teams should perform market segmentation to make it a successful strategy. E.g.: Expert Data and Marketing analyst.
- A company should weigh its options before choosing market segmentation. For instance, it should look at its current financial position, should have a structured process, proper planning, look at time-frame and etc.
- Most often companies like market segmentation which are easy to comprehend from manager point of view and also should easy to read visualizations.
- In order to simplify this step, a questionnaire check list is often prepared and used:
 - If organization culture in the company is market oriented.
 - If the company is ready to undergo drastic change process and also adapt to the change.

- If the company is ready to commit on long-term strategy.
- If the company can generate creative ideas and strategies.
- Company should possess good communication in its organization structure.
- If company is ready to undergo organizational structural changes.
- Company should have sufficient financial budget for implementing market segmentation.
- A strong sense of involvement and commitment from senior management is required.
- Market segmentation training should be carried out by the team if required before executing it.
- A team of 2-3 members should be formed to implement market segmentation.
- Ensure that the team comprises of data analyst, data expert and marketing expert.
- Ensure the objectives of market segmentation are clearly defined.
- Ensure a structured process is followed while segmentation.
- Ensure that sufficient time frame is given to complete the segmentation process.

Step-2: Specifying the Ideal Target Segment

- Segment evaluation criteria is classified into two types which are knockout criteria and attractiveness criteria.
- Knockout criteria refers to the non-negotiable factors that a segment should meet for it to be considered viable. If a particular segment fails to comply with criteria, then it is knocked out and not pursued further.
- Some knockout criteria factors are as follows:
 - The members within a segment should be homogenous.
 - The members between segments should be different.
 - The segment should be large enough (consumers) since a marketing mix would be invested on each segment.
 - The segments should match in accordance with the strength of the company.
 - The segments should be identifiable easily in the market place.
 - The segments should be reachable so that a customized marketing mix can be developed for each market segment.
- Attractiveness criteria refers to the factors that determine how appealing or lucrative a respective market segment is. Attractive criteria help in ranking segments rather than eliminating them.
- Some Attractiveness criteria factors are as follows:
 - Growth Potential of a segment
 - Profitability of each segment
 - Competitive intensity

- Customer loyalty
- Brand synergy
- Thus, Knockout criteria are used first to filter out segments that are not viable for the business. Attractiveness criteria are then applied to the remaining segments to prioritize them based on their potential value.
- The segmentation process should be carried out in a structured process and at the end of this step, the team should come up with at least 6 attractiveness factors.
- In order to simplify this step, a check list is often prepared and used:
 - Conduct a segmentation meeting.
 - Use the knockout criteria factors to eliminate the segments which are not viable for business.
 - Present the knockout criteria to the advisory committee and check if any changes are required.
 - Determine the various attractiveness criteria and form a subset with the help of team members.
 - Come up with no more than 6 attractiveness criteria factors.
 - Assign weights to each attractiveness factors to determine its importance.
 - Present the attractiveness factors to the advisory committee for any adjustments.

Step-3: Collecting Data

- Segmentation variables are specific characteristics used to divide a market into groups or segments.
- The most commonly used segmentation criteria are geographic segmentation, sociodemographic segmentation, psychographic segmentation and behavioral segmentation.
- **Geographic Segmentation:**
 - It refers to dividing the market based on physical location.
 - Some examples of geographic variables include region, population size, climate and urban or rural region.
 - A clothing brand company prioritizing the climate for selling its products.
- **Socio-Demographic Segmentation:**
 - It refers to dividing the market on the basis of demographic factors such as age, gender, income, education, occupation, religion and ethnicity.
 - A luxury watch company targeting high income people.
- **Psychographic Segmentation:**
 - This type of segmentation focusses more on lifestyle traits of consumers.
 - Some examples of psychographic segmentation variables include lifestyle, personality, social class value and beliefs.

- A company selling eco-friendly products targeting environmentalist trait among the consumers.
- **Behavioral Segmentation:**
 - This type of segmentation divides the market on basis of consumer behavior with respect to the product.
 - Some examples of behavioral segmentation variables include benefit sought, usage rate, brand loyalty, amount spent, new or old user.
 - A coffee company may market its product differently to its loyal or new customers.
- Survey data is easily available to collect from market but one has to ensure that the data contains appropriate segmentation variables.
- The variables which do not contribute to the segmentation step are termed as noisy or masking variables which has to be removed. These variables do not contribute much information while performing the segmentation process. Performing a qualitative, exploratory and quantitative survey research ensures that no important variables are omitted.
- While collecting survey data one has to take into account about nature of response options. Survey data containing variables which have binary options(categorical) and metric (numeric) are preferred over ordinal data while using segmentation algorithms which are mostly distance based algorithms.
- While collecting survey data, the sample should be sufficiently large. As a guideline it has to be 100 times the number of segmentation variables included. It should contain only necessary and not correlated data.
- Data can also be collected from internal sources that is within the company. One has to keep in mind that this data will be systematically highly biased.
- Data can also be collected from experimental process for example via advertisements which can be used for segmentation criterion.
- In order to simplify this step, a check list is often prepared and used:
 - Conduct a team meeting discussing about consumer characteristics which could serve as segmentation variables.
 - Determine how the data has to be collected.
 - Data collection step has to be clearly defined and stored without contamination.

Step-4: Exploring Data

- This step involves data cleaning, data pre-processing, understand various levels of categorical variable, categorical variable encoding, uni-variate and bi-variate analysis.
- The first step in exploring data is to understand the different dataset variables included. Then the unique values and datatype of each variable is checked. We can use info() method from pandas library for this purpose. It also helps in identifying if any missing values is present in the data.

- By using the describe() method from pandas we check where the range of values for the dataset lies. It gives valuable information about the numeric data in terms of mean, median, quartiles (Q1, Q2, Q3), count and etc.
- If any missing data is present, then this can be handled by either data imputation or data deletion.
- After cleaning the data, descriptive analysis is done on the dataset. Graphs like boxplot, scatterplots and histograms helps in visualizing numeric data.
- By using matplotlib and seaborn library from python we can visualize different types of graph.
- A boxplot is used to check if any outlier is present in the data.
- A bar plot helps in visualizing categorical variable in terms of frequency count.
- A scatterplot is used for bi-variate analysis.
- A histogram gives an idea of the frequency distribution and also tells about the skewness.
- The next step is pre-processing the dataset. The categorical variables need to be converted into numeric datatype before segmentation/modelling. Categorical variables with binary levels (Yes/No) will be converted into (1/0) by using One Hot Encoding process in python. If the categorical variable has multiple levels, then binning can be used to reduce levels.
- Since most segmentation algorithms are distance based algorithms one has to ensure that scaling of data needs to performed. The most commonly used scaling method is standardization in which the values are centered around the mean with unit standard deviation value. Scaling is done so that biasing towards high value doesn't occur while modelling.
- If the dataset contains a large number of features (segmentation variables) then one can opt for dimensionality reduction techniques such as PCA (Principal Component Analysis), LDA (Linear Discriminant Analysis), Auto encoders and etc.
- PCA is popular linear dimensionality reduction technique that is used to transform high-dimensional data into a lower-dimensional form while retaining as much variability (information) as possible. The steps involved in PCA are as follows:
 - To ensure that each feature contributes equally to the analysis, as PCA is sensitive to the scale of the variables. So the data has to be standardized.
 - To understand how the features of the data are related to one another. The covariance matrix computes the pairwise covariance between features.
 - Eigenvectors and Eigenvalues is then calculated. Eigenvectors determine the directions (principal components) in the feature space along which the data varies the most, and eigenvalues correspond to the magnitude of this variance.
 - Sort the eigenvectors in descending order of their corresponding eigenvalues. The eigenvector with the largest eigenvalue becomes the first principal component, the second largest eigenvalue corresponds to the second principal

component, and so on. By sorting we are ranking the principal components by their importance that based on the amount of variance they explain.

- To reduce the dimensionality of the data by selecting a subset of the most important principal components. Choose the top 'k' eigenvectors based on the cumulative explained variance. Often, a threshold like 95% of the variance is used to determine 'k'.
- Project the data into new feature space by transforming the original data into a lower-dimensional space defined by the selected principal components.
- Analyse the principal components and their contribution to the variance. Visualize the data in the new feature space to identify patterns, clusters, or trends.
- In order to simplify this step, a check list is often prepared and used:
 - Explore the data for any inconsistencies.
 - Clean the data if necessary.
 - Pre-process the data if necessary.
 - If there are too many features, then use a dimensionality reduction technique.
 - Check if the segmentation variables are correlated.
 - Pass the cleaned data for segmentation process.

Step-8: Selecting the Target Segments

- In this step the segment which has to be targeted by the company is selected. For this purpose, the company must revisit and look at knock-out criteria and attractiveness criteria factors again.
- The company needs to identify which segment they are ready to commit to for the long term time frame.
- The company also needs to perform a competitor analysis on the respective segments.
- For evaluating the market segments, decision matrices are used which helps in comparing and identifying which market segment is attractive.
- With the help of weights assigned in Step 2 while deciding the attractiveness criteria factors, the decision matrix is computed for the cases: "How attractive the segment is to the company?" And "How attractive is the company towards the segment?"
- Segmentation Evaluation plot is then plotted which is a bubble plot by taking How attractive the segment is to the company on y-axis and How attractive the company is to the segment on x-axis? The size of the bubble indicates profitability of that segment. One can use this plot to eliminate the non-attractive segments.
- In order to simplify this step, a check list is often prepared and used:
 - Conduct a segmentation team meeting.

- Identify the profitable market segments determined in step 6 and 7 which are being considered as potential target segments.
- Revisit the knockout criteria and attractiveness criteria factors and eliminate those segments which do not comply.
- Compute the decision matrices using the weights and segment value.
- Plot the values in the segmentation evaluation plot.
- Make preliminary selection.
- Present the report to the advisory committee.

Step-9: Customizing the Marketing Mix

- The most commonly used marketing mix is 4P's of marketing which are: Product, Place, Promotion and Price.

➤ Product

- The product refers to the goods or services that a company offers to meet the needs and desires of customers. It includes not only the physical item but also features, quality, branding, and the overall experience associated with the product.
- Key decisions made in product are product design, deciding features and benefits of product, branding, packaging and product life cycle.

➤ Price

- Price refers to the amount of money customers must pay to purchase the product or service. Pricing strategies can influence the perceived value of the product and affect its market demand.
- Key decisions made in pricing include pricing strategy, discounts and promotions, price sensitivity and psychological pricing.

➤ Place

- Place involves the distribution channels through which the product or service is made available to customers. It encompasses all the activities that move the product from the manufacturer to the consumer.
- Key decisions made in place includes distribution channels, logistics and supply chain, location and market coverage.

➤ Promotion

- Promotion encompasses the various methods used to communicate with the target market about the product and persuade them to make a purchase. It includes advertising, sales promotions, public relations, and personal selling.

- Key decisions made in promotions include advertising, sales promotion, public relations, personal selling and digital marketing.
- In order to simplify this step, a check list is often prepared and used:
 - Conduct a segmentation meeting.
 - Examine the various target segment in detail.
 - Determine the product related aspects for the segment.
 - Determine the price related aspects for the segment.
 - Determine the promotion related aspects for the segment.
 - Determine the place related aspects for the segment.
 - Review the marketing mix.
 - Repeat the above steps for other segments.
 - Present the report to the advisory committee.

McDonald's Case Study on Market Segmentation

GitHub link: <https://github.com/Decode369/Feyn-Labs/blob/main/Mcdonald's%20Case%20Study-%20Market%20Segmentation/Mcdonald's%20Case%20Study-%20Market%20Segmentation.ipynb>