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Summary submitted By Akshay Ambewadkar (step 4,5)

Step 1: Deciding (not) to Segment

Implications of Committing to Market Segmentation:

- Market segmentation is a significant marketing strategy but may not always be the best choice.
- Commitment to market segmentation is a long-term commitment, involving substantial changes and investments.
- Costs are associated with research, surveys, package design, advertising, and communication messages.
- Market segmentation should only be pursued if the expected increase in sales justifies these expenses.
- Potential changes include new product development, product modification, pricing changes, and adjustments to distribution channels.
- Organizational structure may need to adapt to target different market segments effectively.
- Decision to pursue market segmentation must be made at the highest executive level and consistently communicated throughout the organization.

Implementation Barriers:

- Senior management plays a crucial role in the success of market segmentation; lack of leadership, commitment, and resource allocation can hinder implementation.
- Organizational culture factors such as resistance to change, lack of market orientation, and poor communication can impede segmentation efforts.

- Inadequate training and understanding of market segmentation concepts can lead to failure.
- The absence of a formal marketing function or qualified experts can be a barrier.
- Objective restrictions like limited financial resources or the inability to make necessary structural changes can hinder progress.
- Process-related barriers include unclear objectives, poor planning, lack of structured processes, responsibility allocation, and time pressure.
- Management's reluctance to use techniques it doesn't understand can be overcome by making market segmentation analysis more accessible and using graphical visualizations.

Step 2: Specifying the Ideal Target

Segment Evaluation Criteria:

- The success of market segmentation analysis depends heavily on user input throughout the process.
- The organization needs to make a significant conceptual contribution to the analysis, guiding various stages of the process.
- In Step 2, the organization must define two sets of segment evaluation criteria: knock-out criteria and attractiveness criteria.
- Knock-out criteria are essential and non-negotiable features that segments must meet to be considered for targeting.
- Attractiveness criteria are used to assess the relative desirability of potential target segments.
- A variety of criteria are proposed in the literature (Table 4.1) to evaluate market segments, including factors related to size, growth, profitability, accessibility, and more.

- The selection of attractiveness criteria and their relative importance to the organization is crucial for target segment selection in Step 8.

Knock-Out Criteria:

- Knock-out criteria determine if a market segment qualifies for assessment using attractiveness criteria.
- Examples of knock-out criteria include substantiality, measurability, accessibility, homogeneity, distinctiveness, size, and organizational capabilities.

Attractiveness Criteria:

- Attractiveness criteria are not binary; they involve rating segments based on their attractiveness across various criteria.
- The collective attractiveness assessment determines whether a market segment becomes a target in Step 8.

Implementing a Structured Process:

- Following a structured process is recommended when assessing market segments.
- A popular approach is the use of a segment evaluation plot, with segment attractiveness on one axis and organizational competitiveness on the other.
- Factors constituting attractiveness and competitiveness should be negotiated and agreed upon.
- It's advisable to involve representatives from various organizational units in this process as they offer different perspectives and will be impacted by the segmentation strategy.
- Selecting attractiveness criteria early ensures that relevant information is collected during data collection (Step 3) and simplifies target segment selection in Step 8.
- Criteria should be weighted based on their importance, typically with team members distributing 100 points among them and negotiating allocations.

Step 3: Collecting Data.

1. Segmentation Variables

1. **Empirical Data:** Empirical data is the foundation for both commonsense and data-driven segmentation. It is used to create and understand market segments.
2. **Segmentation Variables:** Segmentation variables are key in commonsense segmentation. These variables are characteristics of consumers used to divide the sample into segments. For example, gender can be a segmentation variable, resulting in segments of men and women.
3. **Descriptor Variables:** Besides the segmentation variable, other personal characteristics like age, vacation habits, and preferences are descriptor variables. They provide detailed information about segments and are vital for developing effective marketing strategies.
4. **Importance of Describing Segments:** Describing segments is crucial for tailoring marketing strategies. It helps in creating a marketing mix that effectively reaches and resonates with the target audience.
5. **Typical Descriptor Variables:** Descriptor variables can encompass socio-demographics and data about media behavior. These details assist marketers in crafting communication messages to reach their target segments effectively.
6. **Difference Between Approaches:** Commonsense segmentation relies on a single segmentation variable, while data-driven segmentation uses multiple variables. Data-driven segmentation seeks to identify naturally existing or artificially created market segments that are beneficial for the organization.

2. Segmentation Criteria

1. **Introduction to Segmentation Criteria:** Before performing market segmentation, organizations must decide on a segmentation criterion. This criterion encompasses the nature of the information used for segmentation, which goes beyond a single measured value or variable.
2. **Common Segmentation Criteria:** The most common segmentation criteria include geographic, socio-demographic, psychographic, and behavioral factors.
3. **Choosing the Right Criterion:** The choice of segmentation criterion requires market-specific knowledge and cannot be outsourced easily. The recommendation is to use the simplest approach that works for the product or service.
4. **Geographic Segmentation:** Geographic information, such as the consumer's location of residence, is one of the oldest segmentation criteria. It is useful when differences in language, culture, or other factors are significant across regions. Targeting communication messages to specific geographic segments is easy with this criterion.
5. **Advantages and Disadvantages of Geographic Segmentation:** While geographic segmentation is straightforward, it may not always account for differences in product preferences, as location alone does not explain consumer behavior comprehensively.
6. **Socio-Demographic Segmentation:** Socio-demographic criteria include age, gender, income, and education. These segments can be useful in industries like luxury goods, cosmetics, and baby products. However, they may not always provide sufficient market insight.
7. **Psychographic Segmentation:** Psychographic segmentation groups people based on psychological criteria like beliefs, interests, preferences, aspirations, or benefits sought. Benefit segmentation and lifestyle segmentation are common forms. Psychographic criteria are more complex, but they often reflect the underlying reasons for consumer behavior.
8. **Behavioral Segmentation:** Behavioral segmentation identifies segments based on actual behavior or reported behavior. It can include factors like prior product experience, purchase frequency, and amount spent. Behavioral segmentation is advantageous because it directly uses the behavior of interest as the basis for segmentation. However, obtaining behavioral data

may be challenging, especially for potential customers who haven't previously purchased the product.

3. Data from Survey Studies

1. **Survey Data for Market Segmentation:** Most market segmentation analyses rely on survey data due to its cost-effectiveness and ease of collection. However, survey data can be susceptible to various biases that can impact the quality of segmentation results.
2. **Choice of Variables:** The selection of variables for segmentation is crucial. In data-driven segmentation, all relevant variables related to the segmentation criterion must be included, while unnecessary variables should be avoided to prevent respondent fatigue and maintain data quality. Unnecessary variables can hinder segmentation algorithms and are referred to as noisy or masking variables.
3. **Noisy Variables:** Noisy variables do not contribute to identifying correct market segments and can lead to incorrect segmentation solutions. They can result from poorly designed survey questions or the inclusion of redundant questions.
4. **Developing a Good Questionnaire:** Developing an effective questionnaire often involves qualitative and exploratory research to ensure that no critical variables are omitted and to avoid the inclusion of unnecessary questions.
5. **Response Options:** Survey response options influence the scale of data available for analysis. Binary or metric response options are preferable for segmentation as they avoid complications related to distance measures, which are common in many segmentation algorithms. Ordinal data can be problematic due to undefined distances between categories.
6. **Response Styles:** Response styles are systematic tendencies of respondents to answer survey questions in a consistent, biased manner. Biases, such as extreme agreement or disagreement, can affect segmentation results because they can be mistaken for actual beliefs. Response styles should be minimized during data collection.
7. **Sample Size:** Sample size is a critical factor in segmentation analysis. Inadequate sample sizes can lead to ambiguous segmentation results. Guidelines suggest that the sample size should be at least five times the number of segmentation variables to achieve reliable segmentation outcomes.

Step 4: Exploring Data

A First Glimpse at the Data

1. **Exploratory Data Analysis (EDA):** After collecting data for market segmentation, the first step is to perform exploratory data analysis. EDA involves cleaning and, if necessary, preprocessing the data. This stage also helps determine the most suitable algorithm for extracting meaningful market segments.
2. **Technical Aspects of Data Exploration:** Data exploration serves several technical purposes, including:
 - Identifying the measurement levels of the variables.
 - Examining the univariate distributions of each variable.
 - Assessing the dependency structures between variables.
3. **Data Preprocessing:** During data exploration, it may be necessary to preprocess and prepare the data to make it compatible with different segmentation algorithms.
4. **Guidance for Segmentation Methods:** The results obtained during the data exploration stage provide valuable insights into which segmentation methods are most suitable for extracting market segments based on the characteristics of the data.

Data Cleaning

1. **Data Cleaning Introduction:** Before starting any data analysis, the first essential step is to clean the collected data. Data cleaning involves verifying the correctness of recorded values and ensuring consistent labels for categorical variables.
2. **Checking Metric Variable Ranges:** For metric variables (numeric), it's important to check if the values fall within plausible and expected ranges. For example, age should typically range from 0 to 110 years. Detecting implausible values can help identify data collection or data entry errors.
3. **Ensuring Categorical Variable Consistency:** Categorical variables, such as gender, should have consistent and permissible values. For example, if a survey only offers "female" and "male" as options for gender, any other values in the data are not permissible and should be corrected during data cleaning.
4. **Handling Categorical Variable Sorting:** In some cases, the sorting of categories within a categorical variable might appear counter-intuitive due to the default behavior of data processing tools like R. Factors are the default format for storing categorical variables in R, and their levels are sorted alphabetically by default. This can lead to categories being ordered in unexpected ways. To correct this, categories can be re-ordered manually by creating a helper variable and reorganizing the levels accordingly.

Descriptive Analysis

1. **Importance of Data Familiarity:** Before delving into complex data analyses, it's crucial to be familiar with the dataset. Descriptive analysis techniques help in understanding the data and avoid misinterpretation of results.
2. **Tools for Descriptive Analysis:** Statistical software packages offer various tools for descriptive analysis. In the context of R, the **summary()** command is used to obtain a numeric summary of the data. It provides information such as the range, quartiles, mean for numeric variables, and frequency counts for categorical variables. It also reports the number of missing values.
3. **Descriptive Visualization Techniques:** Descriptive analysis involves the use of graphical representations to gain insights into the data. Some common graphical methods include:
 - **Histograms:** Used for visualizing the distribution of numeric variables. Histograms show how frequently observations fall within specific value ranges, revealing information about the distribution's shape (e.g., symmetric or skewed).
 - **Boxplots:** Provide a visual summary of the distribution of data, including median, quartiles, and potential outliers.
 - **Scatter Plots:** Useful for exploring relationships between two numeric variables.
 - **Bar Plots:** Used to visualize the frequency counts of categorical variables.
 - **Mosaic Plots:** Illustrate associations between multiple categorical variables.
4. **Histograms:** Histograms are particularly useful for numeric data and show the frequency of observations within specified value bins. To create a histogram, bins (categories of values) are defined, and the frequency of observations falling into each bin is plotted. The x-axis represents the bin range, and the y-axis represents the frequency.
5. **Binning in Histograms:** Binning involves creating value categories (bins) that cover the entire range of observations. These bins are typically of equal length. The histogram then displays how many observations fall into each bin.

6. **Creating Histograms in R:** In R, various packages can be used to create histograms. The example demonstrates the use of the "lattice" package to create histograms, allowing for segmentation in Step 7.
7. **Customizing Histograms:** Users can customize histograms by specifying the number of bins (bin widths) to gain a deeper understanding of the data distribution.

Step 5: Extracting Segments

1. **Exploratory Nature of Data-Driven Segmentation:** Data-driven market segmentation analysis is exploratory, typically involving unstructured consumer datasets. Consumer preferences are not neatly grouped, and the results of segmentation depend on both data assumptions and the chosen extraction algorithm.
2. **Cluster Analysis for Market Segmentation:** Many segmentation methods are adapted from cluster analysis, where market segments correspond to clusters. The choice of a suitable clustering method must align with the specific characteristics of the data and the researcher's requirements.
3. **Illustrative Example of Algorithm Impact:** An example demonstrates how different algorithms impose structure on data. Two algorithms, k-means cluster analysis and single linkage hierarchical clustering, are applied to the same dataset containing two spiralling segments. Single linkage clustering identifies the spirals, while k-means fails because of its assumption of compact, equally-sized clusters.
4. **Algorithm-Data Interaction:** The choice of segmentation algorithm interacts critically with the dataset's structure. There is no one-size-fits-all algorithm; the data's nature influences the most effective method.
5. **Exploration of Different Methods:** Given the impact of algorithms on segmentation results, it's important to explore solutions from various clustering methods. Understanding how each algorithm imposes structure on segments is key.
6. **Distance-Based vs. Model-Based Methods:** Two main groups of extraction methods are described: distance-based and model-based. Distance-based methods use similarity or distance measures, while model-based methods formulate stochastic models for segments.

7. **Algorithm Pre-Selection:** The choice of an extraction method should be guided by data characteristics and desired segment features. Factors such as data size, scale level of variables, special data structures, and the number of expected segments inform algorithm selection.
8. **Observable and Indirect Characteristics:** Specify common and differing characteristics consumers should share within segments. Observable features, like benefits sought, are directly accessible in the data. Indirect characteristics, such as price sensitivity, may require model-based methods.
9. **Binary Segmentation Variables:** Consider whether binary segmentation variables should be treated symmetrically (common presence and absence) or asymmetrically (only common presence). The choice depends on the specific segmentation objectives.

Summary Submitted by Debmallya Panja (step 6,7)

1.

Implications of Committing to Market Segmentation :

The text discusses the implications of adopting a market segmentation strategy. While segmentation can be a valuable marketing approach, it's crucial to recognize that it requires a long-term commitment. The commitment involves making significant changes and investments in various aspects of the organization, such as product development, pricing, distribution, and communication. These changes can also impact the internal structure of the company. Therefore, the decision to pursue market segmentation should be made at the executive level and consistently communicated and supported throughout the organization.

The implementation barriers:

The excerpt discusses barriers to implementing market segmentation strategies in organizations. It identifies two main groups of barriers: senior management-related and organizational culture-related. Senior management barriers include lack of leadership, commitment, and resources, while organizational culture barriers encompass resistance to change, lack of consumer orientation, and poor communication. Additional obstacles include lack of training, absence of a formal marketing function, objective restrictions, process-related issues, and difficulty in making complex techniques understandable to management. The text emphasizes the importance of addressing these barriers proactively, and if not possible, considering whether to proceed with market segmentation. Dedication, patience, and a problem-solving attitude are highlighted as essential qualities for successful implementation.

2.

Segment Evaluation Criteria

The third layer of market segmentation analysis involves user input, which is crucial for producing valuable results for an organization. User involvement should extend beyond just the initial briefing or final marketing mix development. It should encompass most stages of the segmentation analysis process. There are two sets of segment evaluation criteria: knock-out criteria and attractiveness criteria

Knock-Out Criteria:

These are prerequisites used to decide whether market segments are eligible for evaluation based on segment attractiveness criteria. Initial criteria by Kotler (1994) include factors like substantiality, measurability, and accessibility. Additional criteria recommended by various authors require segments to be homogeneous, distinct, large enough, aligned with the organization's strengths, identifiable, and reachable. These criteria guide senior management, the segmentation team, and advisors in segment selection.

Attractiveness Criteria

it involves evaluating market segments using various criteria to determine their appeal. Unlike binary knock-out criteria, attractiveness criteria are assessed on a scale. Each segment is rated based on its attractiveness in relation to specific criteria. The overall attractiveness across all criteria influences the selection of target segments in the market segmentation process.

3.

Type of Market segmentation:

segmentation criteria determines the type of information used to divide the market into segments, There are different type of segmentation criteria Common criteria include geographic, demographic, psychographic, and behavioural factors.

Geographic segmentation :

It divides markets based on consumer location. While simple and effective for targeting, it might overlook shared preferences within regions. For instance, luxury car preferences may be based on socio-demographics more than location. Despite challenges in cross-border segmentation, some studies and analysis show attempts to create meaningful international segments.

Socio-demographic segmentation :

It categorizes consumers by age, gender, income, and education. It's valuable in certain industries like luxury goods, cosmetics, and baby products. While it explains some preferences

it's not always the main driver. Demographics explain about 5% of behaviour variance, while values and preferences hold more influence in consumer decisions

Psychographic segmentation :

It groups people based on psychological criteria like beliefs and interests. Benefit and lifestyle segmentation are popular types. It's more complex than demographics, using multiple factors like travel motives. This approach reveals consumer behaviour reasons but is complex and relies on reliable data.

Behavioural segmentation :

It involves extracting segments based on actual behaviours, such as prior product experience, purchase frequency, spending patterns, and information search behaviour. It's advantageous as it captures real behaviours, but may lack availability for non-customers. Comparatively, tourist behaviours proved better than geographic factors. This approach avoids the need for measuring psychological traits."

Data from Survey Studies: Key Considerations:

I. Choice of Variables:

Selecting appropriate segmentation variables is crucial for accurate solutions.

Include all relevant variables for data-driven segmentation while avoiding unnecessary ones.

Avoid noisy or masking variables as they hinder optimal segmentation.

II. Response Options:

Different response options in surveys generate varying data scales.

Binary options (0s and 1s) and metric data (numbers) are well-suited for analysis.

Ordinal data (ordered categories) lack clear distance measures for analysis.

III. Response Styles:

Survey responses can exhibit biases (response styles) unrelated to item content.

Biases can distort segmentation results, impacting the interpretation of segments.

Using extreme, midpoint, or agreement-based response patterns can lead to biases.

IV. Sample Size:

Adequate sample size is vital for accurate segmentation results.

Sample size requirements depend on the number of variables and segments.

Studies recommend sample sizes of at least $2p$ or $10 * p * k$ for reliable results.

6.

Profiling segments :

The term 'profiling' refers to analysis of market segments. This step involves regarding data-driven market segmentation. In case of data-driven market segmentation, after extraction step, profiling is required. On the other hand, this step is not necessary for common-sense segmentation because in this case profiles are predefined. When data-driven market segmentation is conducted, profiling helps to interpret the solution of the market segmentation. Consumer may want to extract the solution of the data-driven market segmentation based on their requirements. In this situation, this step is required.

Several approaches for profiling market segments :

1.Traditional Approach:

Data-driven segmentation solutions are often presented to users in two problematic ways: overly simplified summaries or complex tables with exact percentages. Both approaches hinder quick insights. For example, some data in this book illustrates this challenge by displaying mean values of variables for different segments. To understand segments, you must compare their percentages for each variable against other segments or the total. For instance, Segment 2 is defined by valuing rest, staying within budget, and a change of surroundings, but not caring much about cultural offers or nature. Segment 1 seems to be a response style segment, with low interest in all travel motives. Analyzing all six segments would require comparing numerous pairs of percentages. If considering multiple segmentation solutions, the task becomes overwhelmingly complex. Although statistical significance might be provided, it's flawed due to segment creation methods. Segment differences arise from variables, preventing standard tests.

2. Graphical Statistics approaches:

Both overly simplified and overly complex tabular presentations of market segmentation solutions tend to neglect the potential of graphics. However, data visualization through graphics is essential in statistical data analysis. Graphics shed light on complex variable relationships, aiding exploratory analysis and providing insights into evolving trends, especially in the era of big data. Experts recommend visualizations to enhance the interpretation of segmentation analysis results, emphasizing that graphical representations offer more insight than tables. Previous studies also advocate for graphical techniques, favoring intuitive two-dimensional formats over intricate ones. Visualizations have been used in prior research to interpret segmentation solutions effectively. They play a vital role in the data-driven segmentation process by allowing in-depth examination of segments, aiding in profile interpretation and solution evaluation. Visualizations assist both data analysts and users in selecting the most suitable segmentation solution from a plethora of alternatives.

- *Identifying defining Characteristics of Market Segments:*

To understand defining characteristics of market segments, we can use segment profile plots which offer a valuable visual representation. These plots demonstrate how each segment differs from the overall sample across various variables. By rearranging variables, you can enhance visualization. Hierarchical clustering of variables helps group similar patterns. We will get a resulting profile plot after using segment profile plot. It showcases each segment's attributes. It's divided into panels, with centroid representing segment characteristics. Dots serve as reference points for comparison. Marker variables, those significantly different from the overall mean, are highlighted in colour. This approach helps analyze binary variables effectively. The default definition of marker variables in these plots considers both absolute and relative differences from the total mean.

- *Segment separation assignment:*

Segment separation can be easily visualized with segment separation plots, which show how segments overlap across different data dimensions. These plots offer a quick way to

understand segmentation solutions, even though they can become complex with more variables. In the plots, observations are scattered based on segment membership and cluster shapes, with a neighbourhood graph showing segment similarities. The colour-coded observations and dashed/solid cluster hulls indicate true segments' spread. Neighbourhood graphs highlight segment similarities, and thicker lines denote more shared observations. These plots are valuable for assessing separation but may require projection for high-dimensional data. Overall, segment separation plots provide a concise overview of segment distinctions even in complex scenarios.

7.

Developing a complete picture Market Segment:

In this section of the market segment understanding variations in segmentation variables among different market segments. These variables are selected in early segmentation steps for data collection and segment extraction. Profiling examines segment differences, while segment description adds extra information about members to enhance insight. Such descriptions are vital for tailored marketing strategies, as they offer detailed segment understanding. This process uses descriptive statistics and visuals or inferential statistics for examining differences, contributing to a comprehensive marketing mix development.

Now Using some Visualization technique to Describe Market Segment. Visualizations are powerful tools for conveying information about market segments. This subsection explores the use of visual representations, such as charts and graphs, to effectively communicate the characteristics and differences between various segments.

1. Normal and ordinal descriptor variables:

This subsection analyzes differences in market segments using nominal and ordinal descriptor variables involves cross-tabulation of segment membership and the descriptor variable. In this context, visualizations like stacked bar charts or mosaic plots are used to represent such cross-tabulations. Mosaic plots display segment sizes using the width of bars and proportions of descriptor variables using the height of rectangles. These plots can indicate deviations from expected frequencies using colour coding, highlighting differences between observed and expected outcomes. This approach is particularly useful when examining multiple descriptor variables and can integrate aspects of inferential statistics for interpretation.

2. Metric description variables:

These variables are quantitative and can be measured on a continuous scale. Visualizations are utilized to showcase relationships, trends, and differences among market segments based on these metric variables. In this section some approach involves like modified plots, like the segment level stability across solutions (SLSA) plot, which use colours to represent additional data. These visualizations aid in tracing metric variables across different segmentation solutions and identifying consistent trends in market segments.

3. Testing for Segment differences in descriptor variables:

To determine if there are significant differences between market segments Statistical tests are performed. This tests can formally assess differences in descriptor variables among market segments. A common approach is independent tests for each variable. Segment membership, representing nominal summarization, allows association tests with other variables. This subsection explains various statistical methods that can be employed to test for differences and establish the uniqueness of each segment.

4. Predicting segments from descriptor variables:

This section focuses on Understanding market segments and predicting segment membership using descriptor variables. Regression models with segment membership as the dependent variable and descriptors as independent variables are used for this purpose. These models simultaneously assess differences across all descriptors. Prediction performance gauges how well descriptors identify segment membership and reveals critical variables. Regression analysis forms the basis of these prediction models, accommodating categorical variables through formula interfaces. Regression coefficients indicate mean differences in the dependent variable across segments. Generalized linear models extend this to handle a wider range of dependent variable distributions, which is crucial for categorical data.

- **Binary logistic regression:**

Binary logistic regression is a statistical technique used to predict the probability of an event occurring. In the context of market segmentation, it can be used to predict which segment an individual is likely to belong to based on specific descriptor variable. In this regression linear models, the Bernoulli distribution with a logit link is commonly used. This link maps success probability onto a continuous scale. The "glm()" function in R fits these models by specifying the

family, where "binomial(link = 'logit')" represents the Bernoulli distribution with a logit link. Logistic regression interprets coefficients as changes in log odds of success. Odds represent success-to-failure ratios, and coefficients indicate how odds change with unit changes in independent variables. Categorical variables can also be incorporated, showing changes in log odds relative to a reference category. The "effects" package in R aids interpretation by calculating predicted values for various independent variable levels and facilitating visualization of changes in predicted probabilities.

- **Multinomial logistic regression:**

Multinomial logistic regression extends binary logistic regression to predict outcomes with more than two categories. This subsection explains how multinomial logistic regression can be used to predict market segments using multiple descriptor variable this process handles categorical dependent variables, like those resulting from multiple market segments. It uses the logistic function as a link function to predict outcomes for each segment simultaneously. The "multinom()" function from the "nnet" package in R fits this model. Coefficients represent segment differences relative to a baseline category. The "Anova()" function helps assess the significance of variable drops, evaluating if omitting any variables reduces model fit significantly. The output structure is similar to binary logistic regression models.

- **Tree-based methods:**

Tree-based methods, such as decision trees and random forests, are introduced as alternative approaches to predict market segments. These methods create decision rules based on the descriptor variables to classify individuals into different segments. This machine learning technique predict categorical or binary outcomes using independent variables . They offer variable selection, interpretability through visualization, and handle interaction effects. While suitable for many independent variables, they can be unstable. CARTs divide consumers based on independent variables to create pure groups for the dependent variable. The recursive partitioning process generates a tree where nodes represent splits and branches lead to terminal nodes. Different algorithms and R packages like "rpart" and "partykit" implement Classification and regression trees machine learning technique with varying features and visualization options.

Summary Submitted by Monali Mosale (step 8)

Step-1 : Deciding (not) to segment:

1.1 Implications of Committing to Market Segmentation:

The implications of committing to market segmentation can be far-reaching and long-lasting.

Here are some of the most important implications to consider:

- Increased focus: Market segmentation can help businesses to focus their marketing efforts on the customers who are most likely to be interested in their products or services. This can lead to more efficient use of marketing resources and a better return on investment.
- Improved targeting: Market segmentation can help businesses to target their marketing efforts more precisely. This can lead to increased brand awareness, customer loyalty, and sales.
- Better understanding of customers: Market segmentation can help businesses to better understand their customers' needs and wants. This can lead to the development of more innovative products and services that meet those needs.
- Increased competitive advantage: Market segmentation can help businesses to gain a competitive advantage by better understanding their customers and targeting their marketing efforts more effectively.

1.2 Implementation Barriers:

Market segmentation is a powerful tool when used effectively. However, it can also be challenging to implement.

Some of the most common implementation barriers include:

- Lack of resources: Market segmentation can be a resource-intensive process, requiring businesses to collect data, analyze data, and develop marketing strategies for each segment. Businesses with limited resources may find it difficult to implement market segmentation effectively.
- Lack of expertise: Market segmentation requires a deep understanding of customers and the market. Businesses that lack the expertise in market segmentation may find it difficult to implement it effectively.
- Resistance to change: Market segmentation can require businesses to change their marketing strategies and operations. This can be a challenge for businesses that are resistant to change.
- Lack of coordination: Market segmentation requires coordination across different departments within a business. Businesses that lack coordination between departments may find it difficult to implement market segmentation effectively.
- External factors: Market segmentation can be affected by external factors such as changes in the economy, technology, and customer behavior. Businesses need to be able to adapt their market segmentation strategies in response to these changes.

Step-2: Specifying the Ideal Target Segment

2.1 Segment Evaluation Criteria:

There are a number of criteria that can be used to evaluate market segments. Some of the most common criteria include:

- **Measurability:** The segment must be measurable in terms of size, growth potential, and profitability.
- **Accessibility:** The segment must be accessible to the business in terms of distribution channels and marketing reach.
- **Differentiability:** The segment must be differentiable from other segments in terms of customer needs, wants, and behavior.
- **Substantiality:** The segment must be large enough to be profitable for the business to target.
- **Actionability:** The segment must be actionable in terms of developing marketing strategies that can reach and appeal to the target customers.

The best segment evaluation criteria for a particular business will depend on the specific goals and objectives of the business. For example, a business that is focused on growth may be more interested in segments that have a large growth potential. A business that is focused on profitability may be more interested in segments that are already profitable or have the potential to be profitable.

It is important to note that no single segment evaluation criteria is perfect. Businesses should use a combination of criteria to evaluate market segments in order to make the best possible decisions about which segments to target.

2.2 Knock out Criteria:

Knock-out criteria are criteria that are used to eliminate potential market segments from consideration. These criteria are typically used when there are a large number of potential market segments to choose from and the business does not have the resources to target all of them.

Some common knock-out criteria include:

- **Size:** The segment must be large enough to be profitable for the business to target.
- **Growth potential:** The segment must have the potential for growth in order to be sustainable in the long term.
- **Profitability:** The segment must be profitable or have the potential to be profitable in order to be worth targeting.

- Accessibility: The segment must be accessible to the business in terms of distribution channels and marketing reach.
- Differentiability: The segment must be differentiable from other segments in terms of customer needs, wants, and behavior.
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The best knock-out criteria for a particular business will depend on the specific goals and objectives of the business. For example, a business that is focused on growth may be more interested in segments that have a large growth potential. A business that is focused on profitability may be more interested in segments that are already profitable or have the potential to be profitable.

It is important to note that knock-out criteria should be used judiciously. If too many knock-out criteria are used, it may be difficult to find any market segments that meet all of the criteria.

2.3

Attractiveness

Criteria:

Attractiveness criteria are the factors that businesses consider when evaluating market segments to determine which ones to target. Some of the most common attractiveness criteria include:

- Market size: The size of the market segment in terms of the number of potential customers.
- Market growth: The rate at which the market segment is growing.
- Profitability: The potential profitability of the market segment.
- Competition: The level of competition in the market segment.
- Accessibility: The ease with which the business can reach and serve the market segment.
- Fit with business goals: The extent to which the market segment aligns with the business's overall goals and objectives.
- Relevancy: The extent to which the business's products or services are relevant to the needs of the market segment.
- Sustainability: The extent to which the market segment is likely to remain viable in the long term.

The best attractiveness criteria for a particular business will depend on the specific goals and objectives of the business.

For example, a business that is focused on growth may be more interested in market segments that have a large growth potential. A business that is focused on profitability may be more interested in market segments that are already profitable or have the potential to be profitable.

It is important to note that no single attractiveness criteria is perfect. Businesses should use a combination of criteria to evaluate market segments in order to make the best possible decisions about which segments to target.

2.4 Implementing a Structured Process:

Here are some steps you can take to implement a structured process for market segmentation:

1. Define your business goals: What are your business goals? Are you focused on growth, profitability, or both? Once you know your goals, you can start to identify the market segments that are most likely to help you achieve those goals.
2. Choose your segmentation criteria: There are many different segmentation criteria that you can use. Some of the most common criteria include demographics, psychographics, behavioral, and benefit segmentation. Choose the criteria that are most relevant to your business goals and objectives.

3. Collect data: Once you have chosen your segmentation criteria, you need to collect data about your customers. This data can be collected through surveys, focus groups, and other research methods.
4. Analyze your data: Once you have collected your data, you need to analyze it to identify market segments. This can be done using statistical techniques such as cluster analysis and decision trees.
5. Define your market segments: Once you have identified market segments, you need to define them. This includes giving each segment a name and describing the characteristics of the customers in that segment.
6. Evaluate your market segments: Once you have defined your market segments, you need to evaluate them. This includes assessing the size, growth potential, and profitability of each segment.
7. Select target markets: Once you have evaluated your market segments, you need to select target markets. This includes choosing the segments that you want to focus your marketing efforts on.
8. Develop marketing strategies: Once you have selected your target markets, you need to develop marketing strategies. This includes developing products and services that meet the needs of your target markets and developing marketing campaigns that reach your target markets.
9. Monitor and evaluate results: Once you have implemented your marketing strategies, you need to monitor and evaluate the results. This includes tracking the performance of your target markets and making necessary adjustments to your marketing strategies.

By following these steps, you can implement a structured process for market segmentation that will help you achieve your business goals.

Step-3: Collecting Data

Segmentation Variables:

Segmentation variables are the characteristics that are used to divide a market into segments. There are many different segmentation variables that can be used, but some of the most common include:

- Demographic segmentation: This variable divides the market based on factors such as age, gender, income, education, occupation, and location.
- Psychographic segmentation: This variable divides the market based on factors such as personality, lifestyle, and values.
- Behavioral segmentation: This variable divides the market based on factors such as purchase behavior, usage rate, and loyalty.
- Benefit segmentation: This variable divides the market based on the benefits that customers are seeking from a product or service.
- Occupational segmentation: This variable divides the market based on the occupations of customers.
- Geographic segmentation: This variable divides the market based on factors such as country, region, city, and neighborhood.
- Technological segmentation: This variable divides the market based on the technological needs and preferences of customers.
-

The best segmentation variables for a particular business will depend on the specific goals and objectives of the business.

For example, a business that is focused on growth may be more interested in segmentation variables that are related to purchase behavior. A business that is focused on profitability may be more interested in segmentation variables that are related to income and education.

It is important to note that no single segmentation variable is perfect. Businesses should use a combination of segmentation variables to create market segments that are meaningful and actionable.

3.2 Segmentation Criteria:

Segmentation criteria are the standards that are used to evaluate market segments. There are many different segmentation criteria that can be used, but some of the most common include:

- **Measurability:** The segment must be measurable in terms of size, growth potential, and profitability.
- **Accessibility:** The segment must be accessible to the business in terms of distribution channels and marketing reach.
- **Differentiability:** The segment must be differentiable from other segments in terms of customer needs, wants, and behavior.
- **Substantiality:** The segment must be large enough to be profitable for the business to target.
- **Actionability:** The segment must be actionable in terms of developing marketing strategies that can reach and appeal to the target customers.

The best segmentation criteria for a particular business will depend on the specific goals and objectives of the business. For example, a business that is focused on growth may be more interested in segments that have a large growth potential. A business that is focused on profitability may be more interested in segments that are already profitable or have the potential to be profitable.

It is important to note that no single segmentation criteria is perfect. Businesses should use a combination of criteria to evaluate market segments in order to make the best possible decisions about which segments to target.

3.2.1 Geographic Segmentation:

Geographic segmentation is a type of market segmentation that divides the market based on factors such as country, region, city, and neighborhood. This type of segmentation is often used by businesses that sell products or services that are location-specific.

For example, a business that sells snow tires would likely want to target customers in cold climates.

Here are some of the benefits of geographic segmentation:

- It can help businesses to target their marketing efforts more effectively. By targeting customers in specific geographic areas, businesses can ensure that

their marketing messages are seen by the people who are most likely to be interested in their products or services.

- It can help businesses to better understand the needs of their customers. By understanding the demographics and psychographics of customers in different geographic areas, businesses can develop products and services that meet the specific needs of those customers.
- It can help businesses to reduce their marketing costs. By targeting their marketing efforts more effectively, businesses can reach more of their target customers with less money.

3.2.2 Socio-Demographic Segmentation:

Socio-demographic segmentation is a type of market segmentation that divides the market based on factors such as age, gender, income, education, occupation, and location. This type of segmentation is often used by businesses to target their marketing efforts more effectively.

Here are some of the benefits of socio-demographic segmentation:

- It can help businesses to target their marketing efforts more effectively. By targeting customers based on their socio-demographic characteristics, businesses can ensure that their marketing messages are seen by the people who are most likely to be interested in their products or services.
- It can help businesses to better understand the needs of their customers. By understanding the socio-demographic characteristics of their customers, businesses can develop products and services that meet the specific needs of those customers.
- It can help businesses to reduce their marketing costs. By targeting their marketing efforts more effectively, businesses can reach more of their target customers with less money.

3.2.3 Psychographic Segmentation:

Psychographic segmentation is a type of market segmentation that divides the market based on factors such as personality, lifestyle, and values. This type of

segmentation is often used by businesses to target their marketing efforts more effectively.

Here are some of the benefits of psychographic segmentation:

- It can help businesses to target their marketing efforts more effectively. By targeting customers based on their psychographic characteristics, businesses can ensure that their marketing messages are seen by the people who are most likely to be interested in their products or services.
- It can help businesses to better understand the needs of their customers. By understanding the psychographic characteristics of their customers, businesses can develop products and services that meet the specific needs of those customers.
- It can help businesses to reduce their marketing costs. By targeting their marketing efforts more effectively, businesses can reach more of their target customers with less money.

3.2.4 Behavioral Segmentation:

Behavioral segmentation is a type of market segmentation that divides the market based on factors such as purchase behavior, usage rate, and loyalty. This type of segmentation is often used by businesses to target their marketing efforts more effectively.

Here are some of the benefits of behavioral segmentation:

- It can help businesses to target their marketing efforts more effectively. By targeting customers based on their purchase behavior, usage rate, and loyalty, businesses can ensure that their marketing messages are seen by the people who are most likely to be interested in their products or services.
- It can help businesses to better understand the needs of their customers. By understanding the purchase behavior, usage rate, and loyalty of their customers, businesses can develop products and services that meet the specific needs of those customers.
- It can help businesses to reduce their marketing costs. By targeting their marketing efforts more effectively, businesses can reach more of their target customers with less money.

Survey data is a type of data that is collected through surveys. Surveys are a popular way to collect data because they can be used to collect information from a large number of people in a relatively short amount of time.

There are many different types of surveys, but some of the most common types include:

- Online surveys: Online surveys are the most common type of survey. They are easy to create and distribute, and they can be accessed by people all over the world.
- Paper surveys: Paper surveys are still a popular option, especially for surveys that need to be completed by people who do not have access to the internet.
- Telephone surveys: Telephone surveys are less common than online or paper surveys, but they can be a good option for surveys that require respondents to provide detailed information.
- In-person surveys: In-person surveys are the least common type of survey, but they can be a good option for surveys that require respondents to provide sensitive information.

Survey data can be used for a variety of purposes, including:

- Market research: Survey data can be used to understand the needs and wants of customers. This information can be used to develop new products and services, or to improve existing products and services.
- Public opinion polling: Survey data can be used to gauge public opinion on a variety of issues. This information can be used by businesses, governments, and other organizations to make decisions.
- Social research: Survey data can be used to study social trends and behaviors. This information can be used to improve understanding of society and to develop policies and programs that address social problems.

3.3.1 Choice of variables:

The choice of variables is an important part of any survey. The variables that you choose will determine the type of information that you collect.

There are two main types of variables:

- Independent variables: Independent variables are the variables that you are interested in measuring. For example, if you are interested in studying the effects of advertising on sales, then advertising would be the independent variable.
- Dependent variables: Dependent variables are the variables that you are measuring the effect of the independent variable on. For example, in the advertising example, sales would be the dependent variable.

When choosing variables, it is important to consider the following factors:

- Relevance: The variables that you choose should be relevant to the purpose of the survey.
- Measurability: The variables that you choose should be measurable.
- Validity: The variables that you choose should be valid. This means that they should measure what you think they are measuring.
- Reliability: The variables that you choose should be reliable. This means that they should produce consistent results when they are measured repeatedly.

It is also important to consider the number of variables that you include in your survey. Too many variables can make the survey too long and difficult to complete. Too few variables may not provide you with enough information.

By carefully considering the factors involved in choosing variables, you can ensure that you are collecting the information that you need to achieve the purpose of your survey.

The response options that you choose for your survey questions will affect the type of data that you collect. There are many different types of response options, but some of the most common types include:

- Open-ended: Open-ended response options allow respondents to provide their own answers. This type of response option is often used for questions that are exploratory or that require respondents to provide detailed information.
- Closed-ended: Closed-ended response options provide respondents with a set of pre-determined answers to choose from. This type of response option is often used for questions that are factual or that require respondents to select from a limited number of options.
- Likert scale: Likert scales are a type of closed-ended response option that asks respondents to rate their agreement or disagreement with a statement on a scale of 1 to 5. Likert scales are often used for questions that measure attitudes or opinions.
- Semantic differential: Semantic differentials are a type of closed-ended response option that asks respondents to rate their feelings about a concept on a scale of two opposite adjectives. Semantic differentials are often used for questions that measure feelings or emotions.
- Rank order: Rank order response options ask respondents to rank a set of items in order of preference. This type of response option is often used for questions that measure priorities or preferences.

3.3.3 Response Styles:

Response styles are the ways in which people tend to respond to survey questions. There are many different response styles, but some of the most common include:

- Acquiescence response style: People with an acquiescence response style tend to agree with survey questions, regardless of whether they actually agree or disagree with the statement.
- Disacquiescence response style: People with a disacquiescence response style tend to disagree with survey questions, regardless of whether they actually agree or disagree with the statement.
- Mid-point response style: People with a midpoint response style tend to choose the middle option on a scale, even if they do not feel neutral about the statement.
- Extreme response style: People with an extreme response style tend to choose the most extreme option on a scale, even if they do not feel that strongly about the statement.
- Social desirability bias: Social desirability bias is the tendency to respond to survey questions in a way that is considered to be socially acceptable.

Response styles can affect the results of surveys. For example, if a survey question is about a sensitive topic, people with a social desirability bias may be more likely to give a response that they believe is socially acceptable, even if it is not their true opinion.

3.3.4 Sample Size:

The sample size is the number of people that you are surveying. The sample size that you need will depend on the type of variables that you are collecting and the statistical analysis that you plan to perform.

There are a number of factors that you need to consider when determining the sample size for your survey:

- The level of confidence: The level of confidence refers to the level of certainty that you want to have in your results. A higher level of confidence will require a larger sample size.
- The margin of error: The margin of error refers to the amount of error that you are willing to accept in your results. A smaller margin of error will require a larger sample size.
- The variability of the population: The variability of the population refers to the extent to which the members of the population differ from each other. A more variable population will require a larger sample size.
- The type of variables that you are collecting: The type of variables that you are collecting will affect the sample size that you need. For example, you will need a larger sample size to collect data on a variable that is measured on an interval or ratio scale than you would need to collect data on a variable that is measured on a nominal or ordinal scale.
- The statistical analysis that you plan to perform: The statistical analysis that you plan to perform will affect the sample size that you need. For example, you will need a larger sample size to perform a statistical test that requires a parametric assumption than you would need to perform a statistical test that does not require a parametric assumption.

3.4 Data from Internal Sources:

Internal data is data that is collected within an organization. This data can be collected from a variety of sources, such as:

- Sales data: Sales data can provide information about the products or services that are being sold, the customers who are buying them, and the sales channels that are being used.

- Customer data: Customer data can provide information about the customers of an organization, such as their demographics, their buying habits, and their satisfaction with the organization's products or services.
- Financial data: Financial data can provide information about the financial performance of an organization, such as its revenue, expenses, and profits.
- Operational data: Operational data can provide information about the operations of an organization, such as its production, inventory, and shipping data.
- Employee data: Employee data can provide information about the employees of an organization, such as their demographics, their skills, and their performance.

Internal data can be a valuable source of information for organizations. This data can be used to make decisions about a variety of matters, such as:

- Product development: Internal data can be used to identify new product opportunities, to test new products, and to measure the performance of existing products.
- Pricing: Internal data can be used to set prices for products or services, to identify price elasticity, and to measure the impact of price changes on demand.
- Marketing: Internal data can be used to develop marketing campaigns, to measure the effectiveness of marketing campaigns, and to identify target markets.
- Operations: Internal data can be used to improve operations, to identify areas for improvement, and to measure the performance of operations.
- Human resources: Internal data can be used to recruit and hire employees, to train employees, and to measure the performance of employees.

Internal data can be a valuable asset for organizations. By collecting, analyzing, and using internal data effectively, organizations can make better decisions and improve their performance.

3.5 Data from Experimental Studies:

Data from experimental studies is data that is collected in a controlled environment. This type of data can be used to test cause-and-effect relationships between variables.

There are many different types of experimental studies, but some of the most common include:

- Randomized controlled trials: Randomized controlled trials (RCTs) are the gold standard for experimental studies. In an RCT, participants are randomly assigned to either a treatment group or a control group. The treatment group receives the intervention that is being tested, while the control group does not. The results of the study are then compared between the two groups to see if the intervention had any effect.
- Quasi-experimental studies: Quasi-experimental studies are similar to RCTs, but they do not use random assignment. This type of study is often used when it is not possible to randomly assign participants to groups.
- Observational studies: Observational studies are studies in which the researcher does not intervene in the natural course of events. This type of study is often used when it is not possible to conduct an experiment.

Experimental studies can be a valuable source of information for researchers. This type of data can be used to test hypotheses and make predictions about the world.

Summary submitted by Sanskar Gupta (step-9)

Step 1: Deciding (not) to segment:

1. Implications of Committing to Market Segmentation:

Market segmentation is a strategy that involves dividing your target market into smaller, more specific groups based on certain characteristics or behaviours. Here's a more detailed look at the implications of committing to market segmentation:

- **Increased Focus:** When you segment your market, you're able to concentrate your marketing efforts on the customers who are most likely to be interested in your products or services. This means you use your resources more efficiently and get a better return on investment.
- **Improved Targeting:** Segmentation enables you to fine-tune your marketing efforts. This precision can lead to increased brand awareness, customer loyalty, and ultimately, higher sales.
- **Better Customer Understanding:** By segmenting, you gain a deeper understanding of your customers' specific needs and preferences. This knowledge can drive the development of more innovative products and services that cater to these unique demands.
- **Competitive Advantage:** Through segmentation, you can gain a competitive edge by better understanding your customers and directing your marketing efforts more effectively than competitors.

However, it's important to realize that market segmentation requires resources and significant changes to your business approach. This may involve product development, pricing adjustments, changes in distribution strategies, and shifts in communication tactics. Top-level executives should be involved in the decision-making process, and a consistent commitment to segmentation should permeate the entire organization.

2. Implementation Barriers:

Implementing market segmentation can be challenging due to various barriers. Here's a more detailed explanation:

- **Lack of Resources:** Market segmentation often demands resources for data collection, analysis, and the development of marketing strategies for each segment. Companies with limited resources may struggle to implement it effectively.
- **Lack of Expertise:** Successfully implementing segmentation requires a deep understanding of customers and the market. Businesses lacking expertise in this area may face difficulties.
- **Resistance to Change:** Segmentation may necessitate changes in marketing strategies and operations. Resistance to change within an organization can hinder implementation.
- **Lack of Coordination:** Effective segmentation often requires collaboration across different departments in a business. A lack of

coordination between these departments can impede successful implementation.

- **External Factors:** Market segmentation can be influenced by external factors such as economic changes, technological advancements, and shifts in customer behavior. Businesses must be adaptable and able to adjust their segmentation strategies in response to these external factors.

Step 2: Specifying the Ideal Target Segment:

1. Segment Evaluation Criteria:

Before selecting your target market segments, you need to evaluate them based on specific criteria. Here's a closer look at these criteria:

- **Measurability:** The segment should be measurable in terms of its size, growth potential, and profitability. This means you can quantify and analyse the segment effectively.
- **Accessibility:** The segment should be accessible, meaning you can reach its members through your distribution channels and marketing efforts.
- **Differentiability:** Each segment should be distinct from others in terms of the needs, wants, and behaviour of its members.
- **Substantiality:** The segment should be sizable enough to make it worthwhile for your business to target. It should offer sufficient potential for profit.
- **Actionability:** The segment should be actionable. This means you can develop marketing strategies that effectively reach and appeal to the target customers within that segment.

The choice of which criteria to emphasize will depend on your business goals. For example, if your focus is on growth, you may prioritize segments with significant growth potential.

2. Knock-out Criteria:

Knock-out criteria are used to eliminate potential market segments that don't meet specific requirements. Here's a closer look:

- **Size:** The segment must be large enough to be profitable for your business to target.
- **Growth Potential:** The segment should have the potential for growth to ensure long-term viability.
- **Profitability:** The segment must either be profitable already or show potential for profitability.
- **Accessibility:** You must be able to reach the segment through your distribution channels and marketing efforts.
- **Differentiability:** The segment should be distinguishable from other segments based on customer needs, wants, and behaviour.

It's essential to choose knock-out criteria carefully, as too many stringent criteria can make it challenging to find suitable market segments.

3. Attractiveness Criteria:

Attractiveness criteria are used to evaluate market segments and determine which ones to target. Here's a more detailed explanation:

- **Market Size:** Assess the size of the market segment in terms of the number of potential customers it represents.
- **Market Growth:** Evaluate the rate at which the market segment is growing.
- **Profitability:** Consider the potential profitability of the market segment.
- **Competition:** Examine the level of competition within the market segment.
- **Accessibility:** Determine how easily your business can reach and serve the market segment.
- **Fit with Business Goals:** Assess the extent to which the market segment aligns with your overall business goals and objectives.
- **Relevancy:** Consider whether the market segment is relevant to your products or services.
- **Sustainability:** Examine whether the market segment's characteristics are likely to remain stable over time.

The choice of attractiveness criteria will depend on your business's specific circumstances and goals.

Step 3: Collecting Data:

1. Segmentation Variables:

Segmentation variables are characteristics or attributes used to divide a market into segments. Common segmentation variables include demographics (age, gender, income), psychographics (lifestyle, values), behavior (purchase history, usage patterns), and benefits sought (what customers hope to gain from your product). The choice of segmentation variables should align with your business goals and the characteristics of your target market.

2. Survey Data:

Surveys are a valuable tool for collecting data from target customers. Here's more detail:

- **Types of Surveys:** Surveys can be conducted through various channels, including online (web surveys), paper (mailed surveys), phone (telephone surveys), or in person (face-to-face surveys). The choice of survey type depends on your target audience and research goals.
- **Purposes of Surveys:** Surveys serve different purposes, such as market research (understanding customer preferences), public opinion polling (gauging public sentiment), and social research (studying societal trends). Each type of survey requires specific methodologies.

3. Choice of Variables:

When designing a survey, you need to select the most relevant segmentation variables. These variables should be:

- **Relevant:** They should relate to your research objectives and help you understand your target market better.
- **Measurable:** You should be able to quantify and analyze the data related to these variables.
- **Valid:** The variables should accurately measure what they are intended to measure.

- **Reliable:** The variables should produce consistent results when measured repeatedly.

4. Response Options:

Response options refer to the format in which respondents provide answers. Common response options include open-ended questions (allowing respondents to provide detailed responses), closed-ended questions (providing predefined response options), Likert scales (measuring agreement or disagreement on a scale), semantic differentials (using opposite adjectives to assess perceptions), and rank order questions (ranking items by preference). The choice of response options depends on your research goals and the type of information you seek.

5. Response Styles:

Response styles are patterns in how respondents answer survey questions. Understanding response styles is essential because they can introduce bias into survey results. Common response styles include acquiescence (tendency to agree with statements), Di acquiescence (tendency to disagree), use of the midpoint in scales, extreme responses, and social desirability bias (responding in a socially acceptable manner). Researchers need to be aware of these styles when interpreting survey data.

6. Sample Size:

Determining the appropriate sample size is crucial for survey research. Factors to consider when determining sample size include the confidence level (how confident you want to be in your results), margin of error (how much variability you can tolerate), population variability (the expected range of responses), the types of variables (continuous or categorical), and the planned statistical analysis (e.g., descriptive statistics or hypothesis testing). Larger sample sizes generally provide more reliable results but may be more costly and time-consuming to collect.

7. Data from Internal Sources:

Internal data refers to information collected from within the organization. It can include data related to sales, customer behaviour, financial performance, operations, and employee demographics. Here's a more detailed look:

- **Sales Data:** Sales data provides insights into customer purchasing patterns, product performance, and sales channels. It's valuable for making decisions related to pricing, inventory management, and product development.
- **Customer Data:** Customer data includes information about individual customers, such as demographics, purchase history, and preferences. It's useful for personalized marketing efforts and customer relationship management.
- **Financial Data:** Financial data encompasses information about the company's financial performance, including revenue, expenses, and profitability. It's critical for financial planning and analysis.
- **Operational Data:** Operational data includes information about business processes, supply chain management, and production efficiency. It can help optimize operations and reduce costs.
- **Employee Data:** Employee data pertains to information about the workforce, including demographics, skills, and performance metrics. It's essential for human resources management and talent development.

8. Data from Experimental Studies:

Experimental studies involve controlled environments where researchers manipulate variables to test cause-and-effect relationships. Here's a closer look:

- **Randomized Controlled Trials (RCTs):** RCTs involve randomly assigning subjects to different groups (e.g., treatment and control groups) and measuring the effects of an intervention or treatment. RCTs are common in medical research but are also used in other fields.
- **Quasi-Experimental Studies:** Quasi-experimental studies lack the complete randomization of RCTs but still involve interventions and control groups. They are used when full randomization is not feasible or ethical.
- **Observational Studies:** Observational studies involve observing and analysing subjects' behaviour and characteristics in their natural environment. They are used when interventions or manipulations are not possible or ethical.

Experimental studies are valuable for testing hypotheses and making predictions based on controlled conditions. They are often used in scientific research to establish causal relationships between variables.

In summary, market segmentation and data collection are complex processes that require careful consideration of various factors, including your business goals, available resources, and the characteristics of your target market. Understanding these processes in detail allows you to make informed decisions and tailor your strategies to effectively reach and engage your target audience.

Step 9: Customising the Marketing Mix

Step 9 involves customizing the marketing mix to cater to the selected target segment(s). This process includes making decisions related to product, price, place, and promotion based on the characteristics and preferences of the target segment. It's essential to ensure that each element of the marketing mix aligns with the needs and behaviours of the chosen segment(s). The goal is to maximize the benefits of market segmentation by tailoring the marketing mix accordingly.

The step begins with a comprehensive review of the target segment's profile and description. Then, decisions are made regarding product design or modification, pricing strategies, distribution channels, and promotional efforts. It's crucial to gather insights into the segment's preferences and behaviors, such as their purchasing channels, media consumption, and spending habits. These insights inform the development of the marketing mix.

The customization process may involve creating new products, adjusting pricing structures, offering products through preferred distribution channels, and designing advertising messages that resonate with the target segment. The objective is to ensure that the marketing mix effectively reaches and engages the chosen segment.

Additionally, this step emphasizes that market segmentation should not be viewed in isolation but should be integrated with other strategic decisions, such as positioning and competition.

Ultimately, the customized marketing mix should align with the unique characteristics and needs of the target segment, maximizing the effectiveness of marketing efforts. This step may need to be repeated for multiple target segments if applicable, ensuring that the marketing mix is compatible across segments. Finally, the proposed marketing mix is presented to an advisory committee for discussion and potential modification.

GitHub Links:

<https://github.com/AkshayAmbewadkar73/Market-Segmentation.git>

https://github.com/Debmallya-Panja/Mcdonald_market-segment

<https://github.com/monalirl/feynn-a-2>

<https://github.com/ssansskarr/Feynn-Labs-Task2>