Market Segmentation Analysis

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Steps of Market Segmentation Analysis

Step 1: Deciding (not) to Segment

Step 2: Specifying the Ideal Target Segment

Step 3: Collecting Data

Step 4: Exploring Data

Step 5: Extracting Segments

Step 6: Profiling Segments

Step 7: Describing Segments

Step 8: Selecting the Target Segment(s)

Step 9: Customising the Marketing Mix

Code Conversion (Github link)

Report By –

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Step 1: Deciding (not) to Segment

3.1 Implications of Committing to Market Segmentation

1. Long-term Commitment: Requires sustained, long-term commitment and significant organizational changes.

2. Cost Considerations: Incurs costs for research, surveys, packaging, and advertisements. Justification needed through increased sales.

3. Executive Decision: Must be decided by top executives and communicated throughout the organization.

3.2 Implementation Barriers

1. Senior Management: Lack of leadership, commitment, and resources from senior management can impede success.

2. Organizational Culture: Resistance to change, poor communication, and short-term thinking can be barriers.

3. Training: Insufficient understanding of market segmentation among senior management and team members can lead to failure.

4. Marketing Function: Absence of a formal marketing function or qualified experts can hinder implementation.

5. Objective Restrictions: Limited financial resources and structural inflexibility can be obstacles.

6. Process-Related Issues: Unclear objectives, poor planning, and lack of structured processes can impede success.

7. Understanding Techniques: Management's reluctance to use unfamiliar techniques can be countered by making analysis easy to understand.

3.3 Proactive Measures

1. Identify and Remove Barriers: Proactively identify and remove barriers at the outset.

2. Consider Abandonment: Consider abandoning the strategy if barriers cannot be removed.

3. Resolve and Patience: Maintain a resolute sense of purpose, patience, and appreciation for inevitable problems during implementation.

Conclusion

Deciding to pursue market segmentation involves a significant long-term commitment, requiring substantial organizational changes and financial investment. Effective implementation hinges on strong leadership, a supportive organizational culture, and clear understanding and planning. Identifying and addressing potential barriers early can mitigate risks, but if insurmountable obstacles remain, it may be prudent to abandon the strategy.

Step 2: Specifying the Ideal Target Segment

4.1 Segment Evaluation Criteria

1. User Involvement: User input is critical throughout the segmentation process, not just at the beginning or end.

2. Conceptual Contribution: The organization must contribute conceptually to guide subsequent steps, especially data collection and target segment selection.

3. Two Sets of Criteria:

  - **Knock-out Criteria:** Non-negotiable features that segments must have.

  - **Attractiveness Criteria:** Used to evaluate the relative attractiveness of compliant segments.

4.2 Knock-Out Criteria

1. Essential Features: These criteria automatically eliminate segments that do not meet them. They include:

  - **Homogeneity:** Segment members must be similar.

  - **Distinctiveness:** Segment must be clearly different from others.

  - **Size:** Segment must be large enough to justify customization.

  - **Fit:** Organization must be capable of satisfying segment needs.

  - **Identifiability:** Members must be identifiable in the market.

  - **Reachability**: Organization must be able to contact segment members.

4.3 Attractiveness Criteria

1.Relative Attractiveness: Segments are rated on attractiveness criteria, which are negotiated and applied to determine overall attractiveness.

2. Diverse Criteria: Criteria vary widely and are selected based on organizational needs.

4.4 Implementing a Structured Process

1. Structured Evaluation: A structured approach is beneficial, often using a segment evaluation plot to assess attractiveness and competitiveness.

2. Criteria Selection: Criteria and their importance are negotiated and agreed upon, typically resulting in no more than six key factors.

3. Team and Stakeholder Involvement: A core team proposes solutions, which are then reviewed by an advisory committee representing all organizational units.

4. Data Collection Guidance: Early selection of attractiveness criteria ensures relevant information is captured during data collection, facilitating target segment selection later.

Conclusion

Specifying the ideal target segment involves determining knock-out and attractiveness criteria with significant user input. A structured process involving team and stakeholder collaboration ensures criteria are well-defined and prioritized, guiding data collection and aiding in the effective selection of target segments.

Step 3: Collecting Data

Market segmentation is a fundamental concept in marketing that involves dividing a broad consumer or business market into sub-groups of consumers based on some type of shared characteristics. There are two primary approaches to market segmentation: commonsense segmentation and data-driven segmentation.

Importance of Data Quality

High-quality empirical data is essential for developing valid segmentation solutions. Data quality impacts the ability to:

1. Correctly assign each person to the appropriate market segment.

2. Accurately describe the segments, enabling the development of customized products, pricing strategies, distribution channels, and effective communication strategies.

Sources of Empirical Data

Empirical data for segmentation studies can be sourced from:

1. Surveys: Common but can be unreliable if the behavior is socially desirable.

2. Observations: For instance, scanner data from purchases linked to loyalty programs.

3. Experimental Studies: Controlled environments to observe behavior.

Key Segmentation Criteria

Choosing the right segmentation criterion is crucial and cannot be easily outsourced. Common segmentation criteria include:

1. Geographic Segmentation: Based on location (e.g., country, region).

2. Socio-Demographic Segmentation: Based on age, gender, income, education.

3. Psychographic Segmentation: Based on psychological criteria (e.g., interests, beliefs).

4. Behavioral Segmentation: Based on actual behavior (e.g., purchase history).

Geographic Segmentation

Advantages:

- Easy to assign consumers to geographic units.

- Facilitates targeted communication and channel selection.

Disadvantages:

- Consumers in the same geographic area may not share relevant characteristics.

 -Socio-Demographic Segmentation

Psychographic Segmentation

Advantages:

- Reflects underlying reasons for consumer behavior.

Disadvantages:

- Increased complexity in determining segment memberships.

- Reliant on the validity of psychographic measures.

Behavioral Segmentation

Advantages:

- Directly based on the behavior of interest.

- Avoids the need for psychometric measures.

Disadvantages:

- Behavioral data is not always available, especially for potential customers who have not made prior purchases.

Conclusion

Choosing the appropriate segmentation criterion and ensuring high-quality data collection are critical steps in developing effective market segmentation. Both commonsense and data-driven segmentation approaches have their place, and the choice between them depends on the specific marketing objectives and the nature of the market being studied.

Step 8: Selecting the Target Segment(s)

1. Reaffirm Knock-Out Criteria Compliance:

   - Ensure all market segments still under consideration have passed initial criteria (size, homogeneity, distinctiveness, identifiability, reachability, and needs satisfaction).

2. Evaluate Segment Attractiveness:

- Assess how attractive each segment is to the organization based on criteria established in

- Use the profiles and descriptions from Steps 6 and 7 to rate each segment on these criteria.

3. Evaluate Organizational Competitiveness:

   - Determine how attractive the organization is to each segment.

   - Assess this using criteria like product benefits, price suitability, distribution channels, and brand awareness.

4. Construct Decision Matrix:

   - Use a decision matrix to visualize the relative attractiveness and competitiveness of each segment.

   - Plot segment attractiveness on the x-axis and organizational competitiveness on the yaxis.

   - Size the bubbles to reflect a relevant criterion, such as profit potential.

5. Calculate Segment Scores:

   - Multiply the weight of each criterion by the segment's rating for that criterion.

   - Sum these values to get an overall score for segment attractiveness and organizational competitiveness.

6. Plot Segments:

   - Create a segment evaluation plot using the scores from the decision matrix.

   - Visualize segments as circles, with the position reflecting attractiveness and competitiveness, and size reflecting another criterion (e.g., profit potential).

7. Analyze Plot and Make Decisions:

   - Use the plot to compare segments and make informed targeting decisions.

   - Consider eliminating segments that are unattractive or have low competitiveness.

   - Identify segments that are mutually attractive and competitive.

Conclusion:

Selecting the target segment(s) involves ensuring that all remaining segments meet the essential criteria, evaluating both the attractiveness of each segment to the organization and the competitiveness of the organization for each segment. This is done using a decision matrix to visualize and compare the segments. The final step involves analyzing the segment evaluation plot to make strategic decisions on which segments to target, aiming for a balance between attractiveness and competitiveness to maximize the organization's success in the market.

Step 9: Customising the Marketing Mix

1. Understanding Target Segment and Marketing Mix Integration

   - The target segment decision is crucial and must be aligned with other strategic areas such as competition and positioning.

   - The traditional 4Ps model (Product, Price, Place, Promotion) is used to develop the marketing mix.

2. Customising the Product

   - Focus on customer needs to modify or design the product.

   - Consider product naming, packaging, warranties, and after-sales support.

   - Example: For segment 3 in the Australian vacation activities data, develop a product like the "MUSEUMS, MONUMENTS & MUCH, MUCH MORE" with an activities pass.

3. Setting the Price

   - Determine product pricing and discount structures.

   - Use segment-specific data to set prices, considering expenditure patterns.

- Example: Segment 3 shows higher daily vacation expenditure, indicating potential for premium pricing.

4. Choosing the Right Place

- Decide on distribution channels (online, offline, direct, or through intermediaries).

- Use booking behaviour data to inform distribution strategy.

- Example: Segment 3 prefers online hotel bookings, so ensure online booking options for the "MUSEUMS, MONUMENTS & MUCH, MUCH MORE" product.

5. Developing the Promotion Strategy

- Identify effective communication channels and messages.

- Consider public relations, personal selling, and sponsorship.

- Example: Segment 3 relies heavily on tourist centres for information, so provide detailed product info at these centres and online.

6. Visual Analysis and Decision Support

- Use data visualization tools (boxplots, bar charts, mosaic plots) to understand segment preferences.

Conclusion

Customising the marketing mix for a chosen target segment involves a detailed understanding of their preferences and behaviours. For segment 3, key insights include their high spending capacity, online booking habits, and reliance on tourist centres for information. Leveraging these insights, the destination can effectively tailor the product, pricing, distribution, and promotion strategies to better meet the needs of this segment, enhancing their overall vacation experience and boosting the destination's appeal.

Report By – Pamal Kr Mondal

Deciding (not) to Segment

Implications of Committing to Market Segmentation
- Market segmentation requires a long-term commitment from the organization.
- This commitment includes making substantial changes to products, pricing, distribution and communication.
- The organization may need to adjust its internal structure to focus on different market segments.
- The decision to pursue market segmentation should be made at a high level and communicated throughout the organization.

Implementation Barriers
- Lack of leadership commitment and support can hinder successful implementation.
- Insufficient resources can also impede the process.
- An organizational culture that is not market-oriented or resistant to change can be a barrier.
- Lack of training, a formal marketing function or qualified marketing personnel can also cause problems.
- Objective restrictions, such as lack of financial resources, may prevent making necessary changes.
- Process-related barriers include unclear objectives, poor planning, and lack of time.
- Management may not use segmentation techniques they don't understand.

Overcoming Implementation Barriers
- Most barriers can be identified and addressed before starting the segmentation process.
- If barriers cannot be overcome, abandoning market segmentation as a strategy should be considered.
- If proceeding, a strong commitment and willingness to address problems are necessary.

Specifying the Ideal Target Segment

Segment Evaluation Criteria are basically how you decide which customer groups are best to target.

There are two main types of criteria: **knock-out and attractiveness**.

Knock-out criteria are essential features that a group must have to be considered. For example, the group must be big enough to be profitable and the company must be able to reach them with marketing.

Attractiveness criteria are used to compare different groups that meet the knock-out criteria. For example, a group might be more attractive because they are more likely to buy the product or because they are less price sensitive.

When choosing target markets, companies consider both knock-out and attractiveness criteria.

Collecting Data

- There are three main sources of data for market segmentation: surveys, internal data and experimental studies (choice experiments).

- Surveys are the most common source of data, but they can be biased because people may not answer truthfully.
- Internal data is good because it reflects actual behaviour, but it may not include potential customers who have not purchased anything yet.
- Experimental data can be helpful, but it can be expensive and time-consuming to collect.
- When collecting data for market segmentation, it is important to consider the following:
  - The segmentation criteria (e.g. geographic, demographic, psychographic, behavioural)
  - The quality of the data
  - The sample size (should be large enough to identify segments accurately)

Extracting Segments

- Segmentation variables in market analysis are to extract segments.
- Principal components analysis is used on the correlation matrix, retaining components with eigenvalues > 1 via the Kaiser criterion.
- Data structure analysis methods include cluster indices, gorge plots, global stability, and segment level stability analysis.
- Selecting the right number of market segments is crucial, guided by internal and external cluster indices.
- Consumer data categories impact market segmentation strategies, emphasizing constructive segmentation for unstructured data.
- Visualization tools like neighborhood graphs and scatter plots show how clusters relate to market segments.
- The VSBD procedure aids in variable selection for clustering binary data sets.
- Biclustering plots analyze market segments' distinctiveness in specific vacation activities.
- Finite mixtures of distributions in model-based clustering involve terms like mixture components and prior/posterior probabilities.

Different Methods of Segment Analysis:

Distance-Based Methods: Utilize similarity or distance between observations to group similar ones into market segments.
Model-Based Methods: Formulate stochastic models for market segments, offering a different approach to extraction.
Variable Selection Procedure for Clustering Binary Data (VSBD): Helps identify relevant variables for clustering binary data sets.
Finite Mixtures of Distributions: Fit distributions to data without independent variables, involving mixture components and probabilities.
Cluster Indices: Provide insight into aspects of market segmentation solutions, categorized as internal and external indices.
Global Stability Analysis: Determines the stability of segmentation solutions across repeated calculations.
Visualization Techniques: Include neighborhood graphs and scatter plots to understand the relationship between extracted clusters and market segments.

Variable Selection Procedure for Clustering Binary Data work:

- The Variable Selection Procedure for Clustering Binary Data (VSBD) aims to identify relevant variables for clustering binary data sets.
- It starts by selecting a small subset of variables based on the k-means algorithm and a performance criterion like within-cluster sum-of-squares.
- Additional variables are incrementally added based on the smallest increase in the within-cluster sum-of-squares criterion until a threshold is reached, aiding in segment extraction and interpretation.

Segment Level Stability Within Solutions in market segmentation:

- Segment level stability within solutions (SLSW) helps in assessing the stability of individual segments within a market segmentation solution.
- It allows for the detection of highly stable segments, such as potentially attractive niche markets, amidst unstable segments in a solution.
- Understanding SLSW is crucial for organizations as they typically target specific segments rather than the entire segmentation solution, aiding in survival and competitive advantage.

REPORT BY– JOHAN DOLEY

STEP 1: Deciding (not) to Segment

1.1 Implications of Committing to Market Segmentation

i)Long-term Strategy Commitment: Opting for market segmentation is a strategic decision that demands a lasting commitment. This involves significant organizational changes and substantial investments. It's akin to a long-term relationship rather than a fleeting engagement.

ii)Cost Considerations: Implementing a segmentation strategy incurs considerable costs, including those for conducting research, organizing surveys, and creating diverse marketing materials. The anticipated increase in sales must outweigh these costs for the strategy to be viable.

iii)Organizational Restructuring: Successful market segmentation often necessitates the development of new products, the modification of existing ones, and changes in pricing and distribution channels. Additionally, internal structures might need to be reoriented around market segments instead of products to maintain a focused approach.

iv)Executive-Level Decision: The decision to pursue market segmentation should be made by top executives. It requires systematic communication and reinforcement throughout the organization to ensure successful implementation.

1.2 Implementation Barriers

A) Leadership Challenges: Effective segmentation requires strong leadership. A lack of proactive involvement and commitment from senior management can severely undermine the process.

B) Resource Allocation Issues: Without adequate resources for both the initial segmentation analysis and its long-term implementation, the strategy is likely to fail.

C) Cultural Resistance: Organizational culture plays a crucial role. Resistance to change, lack of consumer orientation, poor communication, and internal politics can all act as significant barriers to successful segmentation.

D) Lack of Understanding and Training: If senior management and the implementation team lack a fundamental understanding of market segmentation principles, the strategy is likely to falter.

E) Absence of Formal Marketing Structure: Especially in large and diverse organizations, the lack of a formal marketing function or qualified marketing professionals can impede the effectiveness of a segmentation strategy.

F) Financial and Structural Constraints: Limited financial resources or the inability to make necessary structural changes can restrict the feasibility of implementing a segmentation strategy.

G) Process Inefficiencies: Poor planning, unclear objectives, and a lack of structured processes can hinder the segmentation effort. Time pressure and inadequate responsibility allocation also contribute to these challenges.

H) Operational Understanding: Techniques that are not well-understood by management are unlikely to be adopted. Presenting segmentation analysis results in an easily interpretable format, such as through graphical visualizations, can help mitigate this issue.

Step 1 Checklist

i)Proactive Barrier Removal: Identify and remove barriers early in the segmentation study. If barriers cannot be removed, reconsider pursuing segmentation.

ii)Sense of Purpose: Implementing segmentation requires dedication, patience, and a willingness to tackle inevitable challenges.

Some important points:

i)Market segmentation is a long-term commitment requiring significant organizational changes and investments

ii)Senior management buy-in and involvement are critical for successful implementation.

iii)Organizational culture, lack of training, and formal marketing function can pose barriers.

iv)Objective restrictions like financial limitations or inability to make structural changes can impede progress.

v)Process-related barriers such as unclear objectives, lack of planning, or time pressure need to be addressed.

vi)Making segmentation analysis easy to understand and presenting results visually can aid in overcoming resistance.

vii)If barriers cannot be removed, reconsidering the pursuit of market segmentation as a strategy is advisable.

Summary: Market segmentation is a key marketing strategy used by many organizations, but it's not always the best decision to pursue. Before investing in segmentation analysis, it's crucial to understand the implications. Commitment to segmentation is essential, requiring long-term dedication and significant investments. This commitment entails making substantial changes, including developing new products, modifying existing ones, adjusting pricing and distribution channels, and aligning communication strategies. Organizational structure may need to shift towards organizing around market segments rather than products. Senior management buy-in is vital, as lack of leadership, resources, or a market-oriented culture can hinder successful implementation. Lack of training, formal marketing function, or qualified personnel can also pose barriers. Objective restrictions like financial limitations or inability to make structural changes can impede progress. Process-related barriers such as unclear objectives, lack of planning, or time pressure also need to be addressed. Making segmentation analysis easy to understand and presenting results visually can aid in overcoming resistance. Ultimately, a resolute sense of purpose and dedication are needed to navigate the challenges and implement segmentation successfully.

Step 2: Specifying the Ideal Target Segment

2.1 Segment Evaluation Criteria

The third layer of market segmentation analysis hinges on user input throughout the process. Organizations must contribute conceptually to the segmentation analysis, guiding crucial steps like data collection (Step 3) and target segment selection (Step 8). There are two primary sets of segment evaluation criteria:

 a)Knock-Out Criteria: These are essential, non-negotiable features that segments must meet to be considered.

 c) Attractiveness Criteria: These criteria assess the relative appeal of segments that pass the knock-out criteria.

The literature provides a broad range of potential criteria, listed in chronological order in Table 4.1. These include metrics like measurability, size, growth potential, competitive advantage, and socio-political considerations.

2.2 Knock-Out Criteria

Knock-out criteria ensure that market segments meet fundamental requirements before further evaluation. Key knock-out criteria include:

   i)Homogeneity: Segment members must be similar to each other.

   ii)Distinctiveness: Segment members must be clearly different from those in other segments.

   iii)Size: The segment must be large enough to justify the investment.

   iv)Organizational Fit: The organization must be able to meet the segment's needs.

   v)Identifiability: The segment must be identifiable in the marketplace.

   vi)Reachability: There must be effective ways to reach the segment.

These criteria must be clear to senior management and the segmentation team, with specific thresholds defined where necessary.

2.3 Attractiveness Criteria

Attractiveness criteria are used to rate the relative appeal of market segments. Unlike knock-out criteria, attractiveness criteria are not binary; segments are rated based on how well they meet each criterion. These criteria include factors such as:

i)Market Potential: The size and growth rate of the segment.

ii)Competitive Landscape: The level of competition and barriers to entry.

iv)Profitability: The potential for high margins and returns on investment.

v)Strategic Fit: How well the segment aligns with the company's strengths and objectives.

The segmentation team must determine which attractiveness criteria are most relevant to their organization and weigh them accordingly.

2.4 Implementing a Structured Process

A structured approach to evaluating market segments is essential. One common method is using a segment evaluation plot, which charts segment attractiveness against organizational competitiveness. This requires identifying and agreeing on the most important criteria for the organization.

Typically, a core team proposes an initial set of criteria, which is then reviewed by an advisory committee representing various organizational units. This ensures that different perspectives are considered and that all units are invested in the segmentation strategy.

By the end of Step 2, the segmentation team should have identified around six key attractiveness criteria, each with an assigned weight reflecting its importance. This groundwork makes data collection (Step 3) more focused and facilitates

Some important points:

i)Alignment with company objectives: The ideal target segment should align with the overall goals and objectives of the organization. This ensures that resources are invested in segments that contribute to the company's long-term success.
ii)Compatibility with company capabilities: The segment should be compatible with the company's resources, capabilities, and competencies. This includes factors such as production capacity, distribution channels, and marketing expertise.

iii)Adaptability to market dynamics: The target segment should be flexible enough to adapt to changing market conditions, consumer preferences, and competitive landscapes.

iv)Sustainability: The chosen segment should offer sustainable growth opportunities, avoiding short-term fads or trends that may not have long-term viability.

v)Accessibility of data: The availability and accessibility of data related to the segment are crucial for effective targeting and decision-making. The segment should have sufficient data sources for analysis and monitoring.

vi)Risk assessment: Assessing the risks associated with each potential segment is important to mitigate potential pitfalls and challenges. This includes evaluating factors such as market volatility, regulatory risks, and competitive threats.

Conclusion

In conclusion, specifying the ideal target segment is a critical step in the market segmentation process that requires a collaborative effort and thorough analysis within the organization. By setting stringent knock-out criteria and detailed attractiveness criteria, companies can effectively evaluate and prioritize potential segments based on their alignment with organizational objectives, compatibility with company capabilities, adaptability to market dynamics, sustainability, accessibility of data, ethical considerations, and risk assessment.This meticulous process not only ensures that resources are invested wisely in segments that offer the greatest potential for long-term success but also fosters alignment and buy-in across all organizational levels. Furthermore, it lays a solid foundation for the development of targeted marketing strategies that resonate with the identified target segment, leading to enhanced customer satisfaction, increased market share, and improved profitability.However, it's essential to recognize that market segmentation is not a one-time endeavor but rather an ongoing process that requires continuous monitoring, evaluation, and adjustment. As market conditions evolve and consumer preferences change, organizations must remain agile and responsive, ready to adapt their segmentation strategies accordingly.Ultimately, by following a structured and collaborative approach to specifying the ideal target segment, organizations can position themselves for sustainable growth and competitive advantage in today's dynamic business environment.

Step 3: Collecting Data

3.1 Segmentation Variables

Empirical data forms the foundation for both commonsense and data-driven market segmentation. In commonsense segmentation, a single characteristic, termed a segmentation variable, divides the sample into segments. Descriptor variables then describe these segments in detail, crucial for developing targeted marketing strategies. On the other hand, data-driven segmentation employs multiple variables to identify or create segments based on naturally existing or artificially defined criteria.

3.2 Segmentation Criteria

Before segment extraction and data collection, organizations must decide on segmentation criteria. These criteria define the nature of information used for segmentation and include geographic, socio-demographic, psychographic, and behavioral factors. Choosing the appropriate criterion depends on market knowledge, with simpler approaches often proving most effective and cost-efficient.

i)Geographic Segmentation: Based on consumer location, this approach facilitates targeted communication but may overlook other relevant characteristics.

ii)Socio-Demographic Segmentation: Criteria like age, gender, income, and education can easily determine segment membership but may not always explain product preferences adequately.

iii)Psychographic Segmentation: Groups consumers based on psychological traits or motives, offering insights into underlying behavior but requiring multiple variables for accuracy.

iv)Behavioral Segmentation: Focuses on actual behavior, such as purchase frequency or brand choice, offering direct insight into consumer preferences without relying on self-reported data.

Each criterion has its advantages and limitations, making the choice crucial for effective segmentation strategies. While geographic and socio-demographic criteria are straightforward, psychographic and behavioral approaches offer deeper insights but require more complex data collection and analysis.

3.3 Data from Survey Studies

Survey data is a common source for market segmentation analyses due to its affordability and ease of collection. However, it's prone to biases that can impact segmentation quality. Here are key considerations when using survey data:

3.3.1 Variable Selection

Choosing the right variables is crucial for segmentation quality. In data-driven segmentation, all relevant variables must be included while avoiding unnecessary ones to prevent respondent fatigue and information overload. Noisy or redundant variables can obscure segmentation solutions, making careful variable selection essential. Additionally, the chosen variables should be highly relevant to the segmentation objectives, providing meaningful insights into consumer behaviors and preferences. It is also important to validate the variables through pre-tests or pilot studies to ensure they accurately capture the desired information and contribute to reliable segmentation outcomes

3.3.2 Response Options

The response options provided to respondents influence the data's suitability for segmentation analysis. Binary or metric options are ideal for straightforward analysis, while ordinal scales may complicate segmentation due to undefined distances between options. Visual analogue scales offer a metric alternative and can enhance data quality. Furthermore, ensuring that response options are clear, unambiguous, and comprehensive can improve data accuracy and respondent engagement. Utilizing mixed-mode surveys, where different response formats are combined, can also help capture a wider range of data while accommodating different respondent preferences and styles.

3.3.3 Response Styles

Response biases can skew survey data, impacting segmentation results. Respondents may exhibit consistent response styles, such as extreme agreement or disagreement, which can misrepresent segment characteristics. Minimizing response styles through thoughtful survey design and analysis is crucial for accurate segmentation. Techniques such as balanced response scales, reverse-coded items, and attention-check questions can help mitigate response biases. Additionally, employing statistical adjustments, like response style correction or factor analysis, can further refine the data, ensuring that the

segmentation results are reflective of true segment differences rather than artifacts of response tendencies.

3.3.4 Sample Size

Adequate sample size is vital for robust segmentation analysis. Insufficient samples can hinder algorithm performance and lead to unreliable segment identification. Recommendations suggest a minimum sample size based on the number of segmentation variables to ensure accurate and meaningful segmentation results. Larger sample sizes enhance the generalizability of the findings and improve the stability of the segmentation solutions. Ensuring diversity within the sample can also provide a more comprehensive understanding of the market, capturing variations across different demographic and psychographic groups. Stratified sampling or oversampling underrepresented groups can help achieve a more balanced and representative dataset, which is crucial for accurate and actionable segmentation.

3.4 Leveraging Internal Data

Organizations are increasingly tapping into their internal data reserves for market segmentation analysis. Examples include scanner data from grocery stores, booking information from airline loyalty programs, and online purchase records. The advantage of such data lies in its representation of actual consumer behavior, avoiding the biases inherent in self-reported data. Additionally, internal data are often readily available without the need for additional data collection efforts.

However, a potential drawback is the inherent bias towards existing customers in internal data sets. This limitation highlights the need to supplement internal data with insights into potential future customers whose consumption patterns may differ from those of current customers.

3.5 Insights from Experimental Studies

Experimental data offer another valuable source for market segmentation analysis. These data can stem from field or laboratory experiments, such as testing consumer responses to different advertisements. Furthermore, experimental data can result from choice experiments or conjoint analysis, where consumers express preferences for products with specific attribute combinations. This information provides insights into how various product attributes influence consumer choice, offering valuable segmentation criteria.

3.6 Leveraging Machine Learning and AI:

    i)Utilize machine learning algorithms, such as clustering or classification models, to uncover hidden patterns and segment characteristics in large datasets.

    ii)Apply AI-driven predictive analytics to forecast segment behaviors and trends, enabling proactive and data-driven decision-making.

3.7 Ensuring Data Quality and Integrity:

- Implement data validation and cleaning procedures to identify and rectify errors, inconsistencies, or missing values in the dataset.
- Regularly update and maintain the data to ensure it reflects the most current and accurate information for segmentation analysis.

Conclusion:

Collecting data for market segmentation is a multifaceted process that requires careful consideration of segmentation variables, criteria, and data sources. The choice of segmentation variables and criteria should be guided by market knowledge and business objectives, ensuring they are relevant and actionable. Survey studies, while common and cost-effective, require meticulous design and execution to mitigate biases and ensure data quality. Internal data and experimental studies offer valuable insights into actual consumer behavior and preferences, though they should be complemented with external data to provide a holistic view of the market.

Leveraging advanced methodologies, such as machine learning and AI, can enhance the segmentation process by uncovering complex patterns and predicting future behaviors. Ensuring data quality and integrity is paramount, as accurate and reliable data forms the foundation of effective segmentation.

By adopting a structured and comprehensive approach to data collection, organizations can develop robust market segmentation strategies that drive targeted marketing efforts, meet consumer needs more effectively, and ultimately achieve greater market success. Continuous refinement and adaptation of data collection methods will further enhance the ability to respond to evolving market dynamics and consumer preferences.

Step 6: Understanding Market Segments

6.1 Unveiling Market Segment Characteristics

In the process of segment profiling, the focus is on comprehending the market segments derived from the segmentation step. This step is indispensable when employing data-driven segmentation methods, whereas it's unnecessary in commonsense segmentation where segment profiles are predetermined. With data-driven segmentation, until the analysis is complete, the defining characteristics of resulting market segments remain unknown.

Profiling involves delineating each market segment individually and comparing them to one another. However, merely stating common activities within a segment, like alpine skiing for winter tourists in Austria, may not adequately differentiate one segment from another.

Understanding these characteristics becomes crucial, especially when natural segments are absent, and a reproducible or constructive segmentation approach is adopted. Profiling serves as the foundation for interpreting the resulting segments accurately, which is essential for making strategic marketing decisions.

Interpreting data-driven segmentation solutions poses challenges for managers. Often, segmentation results are either oversimplified or presented in complex tables, making them difficult to interpret. Graphical statistical approaches, discussed further, offer a more intuitive way to profile segments.

6.2 Traditional Methods for Profiling Segments

Using a dataset on Australian vacation motives, segments were extracted employing the neural gas clustering algorithm. Data-driven segmentation solutions are typically presented either as overly simplified summaries or complex tables, making interpretation arduous. A traditional approach involves comparing segment means with overall means across various segmentation variables to identify defining segment characteristics.

6.3 Visual Approaches to Segment Profiling

Visualizations play a crucial role in segment profiling, offering a more intuitive understanding of segment characteristics. Segment profile plots visually depict how each market segment differs from the overall sample across segmentation variables. These plots facilitate comparison and interpretation of segment characteristics, making them easier to comprehend than traditional tabular presentations.

6.3.1 Identifying Segment Characteristics with Visualizations

Segment profile plots illustrate how each segment deviates from the overall sample across segmentation variables. By visually highlighting differences and similarities, these plots provide valuable insights into segment characteristics, enhancing interpretability.

6.3.2 Assessing Segment Separation

a) Segment Separation Visualization: Segment separation plots offer a visual depiction of segment overlap across various dimensions of the data space, aiding in the assessment of segmentation solutions.

b) Plot Components: These plots typically include scatter plots of observations colored by segment membership, cluster hulls outlining segment shapes, and neighborhood graphs indicating similarity between segments.

c) Complexity with Dimensionality: While segment separation plots are straightforward with low-dimensional data, they become more intricate as the number of segmentation variables increases.

d)Interpretation Challenges: Assessing segment separation can be challenging, especially when dealing with overlapping segments or large sample sizes. Modifications to colors, omitting observations, and highlighting segment areas can enhance plot readability.

e)Interpretation of Plots: Interpretation of segment separation plots relies on understanding the characteristics of each segment represented by distinct clusters or areas within the plot.

6.3.2.1 Enhancing Interpretability:

i)Using consistent color schemes and clear legends improves the readability and interpretability of segment separation plots.

ii)Annotating plots with key insights and segment labels aids in quick identification and understanding of segment characteristics.

iii)Incorporating interactive elements in visualizations, such as tooltips and zoom features, enhances user engagement and exploration.

Conclusion:

Understanding market segments through detailed profiling and effective visualization is crucial for making informed strategic marketing decisions. Profiling market segments involves not only identifying common characteristics but also distinguishing unique traits that set each segment apart. Traditional methods, while useful, often fall short in conveying the complexity of segment characteristics, leading to oversimplification or confusion.

Visual approaches, on the other hand, offer a more intuitive and comprehensive understanding of segment profiles. Techniques such as segment profile plots, heatmaps, and multidimensional scaling provide clear, interpretable insights into segment characteristics and their distinctiveness. Despite challenges in interpreting complex data visualizations, enhancements like consistent color schemes, interactive elements, and clear annotations can significantly improve readability and understanding.

Ultimately, by combining traditional methods with advanced visualizations, organizations can gain a holistic view of their market segments. This enables them to tailor their marketing strategies effectively, meet the specific needs of each segment, and achieve better market alignment and competitive advantage. Continuous refinement of profiling techniques and visualization tools will further enhance the ability to make data-driven decisions that drive business success.

Report By –

Sahil Sudhir Pawar

STEP - I

* Implications of committing to Market Segmentation —

- From the given information we can conclude that the major factors affecting market segmentations are:-

a) Long Term Commitment —
Market segmentation requires long-term commitment from the organization. It is not a short term tactic but a strategy that involves ongoing change and investment.

b) Organizational Changes —
Committing to segmentation often means developing new products, modifying existing ones, changing pricing and altering distribution channels. These changes can impact the internal structure of the organization, which may need to adjust to focus on different market segments.

c) Executive Decision —
Due to the significant commitment required, the decision to pursue market segmentation should be made at the highest executive level. It must be communicated clearly and consistently throughout the organization.

* Implementation Barriers —

- The literature survey provides us with the barriers in implementation of committing to Market segmentation —

1. Senior Management —
Successful segmentation requires active involvement and commitment from senior management. Without leadership support, sufficient

resources and active interest, implementing a segmentation strategy can be nearly impossible.

2. Organizational culture -
A lack of market or consumer orientation, resistance to change, lack of creative thinking, poor communication, and office politics can impede successful implementation.

3. Lack of Training -
If senior management and the segmentation team do not understand market segmentation fundamentals, the strategy is likely to fail.

4. Objective Restrictions -
Limited financial resources or the inability to make necessary structural changes can restrict the organization's ability.

5. Process Related barriers -
clear objectives, good planning, structural process and proper allocation of responsibilities are crucial. Time pressure and ambiguity can hinder but outcome.

6. Operational challenges -
Management might not use segmentation techniques they don't understand. Making the analysis easy to understand and presenting results clearly help overcome this barrier.

STEP - 2

* Segment Evaluation Criteria -

→ For effective market segmentation, the organization must be actively involved throughout the process, not just at the beginning or end. This involvement is crucial in guiding steps like data collection and selecting target segments.

• The organization needs to establish 2 set of criteria:

a) Knock out criteria:
Essential, non-negotiable features that a segment must have to be considered.

b) Attractiveness:
Used to evaluate the relative attractiveness of segments that meet the knock out criteria

* KNOCK - OUT CRITERIA -
These criteria determine if a market segment qualifies for further evaluation. They include :-
• Homogeneity - Segment members must be similar
• Distinctiveness - Segment members must be different from other segments
• Size - Segment must be large enough to justify investment.
• Fit - Segment should match the organizations strengths.
• Identifiability - Segment members must be identifiable.
• Reachability - Segment members must be reachable.

* ATTRACTIVENESS CRITERIA –

It works on the basis of relative attractiveness. Unlike knock-out criteria, attractiveness criteria are not binary. Segments are rated based on how well they meet these criteria, which helps determine their overall attractiveness.

* STRUCTURE OF THE PROCESS of SEGMENTATION –

• Segment Evaluation –

A common method for evaluating segments involves plotting them based on attractiveness and organizational competitiveness. This requires selecting specific criteria and assigning importance to each.

• Team involvement –

A team from various organizational units should be involved in selecting and weighing these criteria. This ensures a comprehensive perspective and smoother implementation

• Early Selection Benefits –

Deciding on attractiveness criteria early ensures relevant data is collected and simplifies later stages of selecting target segments.

• Weighting Criteria –

Each criterion should be weighted based on its importance to the organization. This can be done by distributing points among the criteria and negotiating the final weights.

STEP - III

* Collecting Data

A) Segmentation Variables.
Empirical data is essential for identifying and describing market segments. Segmentation variables are characteristics used to split the sample into segments, typically using one characteristics in commonsense segmentation. Other characters act as descriptor variables to details segments.
- In Data - Driven segmentation, multiple variables are used to find or create useful segments.
- The quality of empirical data is crucial for accurate segmentation and description, enabling effective marketing strategies. Data comes from surveys, observations or experiments, with behaviour - reflective data being ideal.

B) Segmentation Criteria -
Before collecting data, organization must choose a segmentation criterion, which is broader than a segmentation variable and encompasses the nature of the information used. Common criteria include geographic, socio - demographic, psychographic and behavioral factors.

1. Geographic segmentation -
Geographic segmentation uses consumers location to form segments. It's a straight forward and effective for targeting localized communication, though it may not reflect other relevant characteristics.
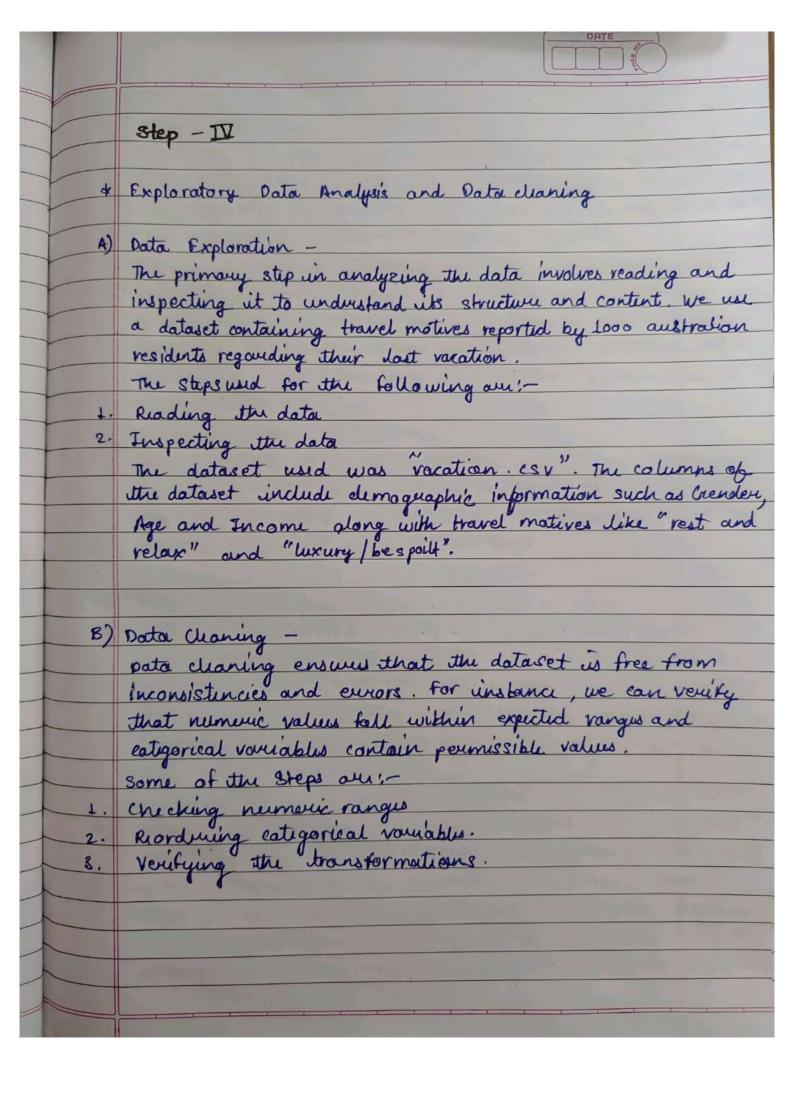
2. Socio - Demographic segmentation -
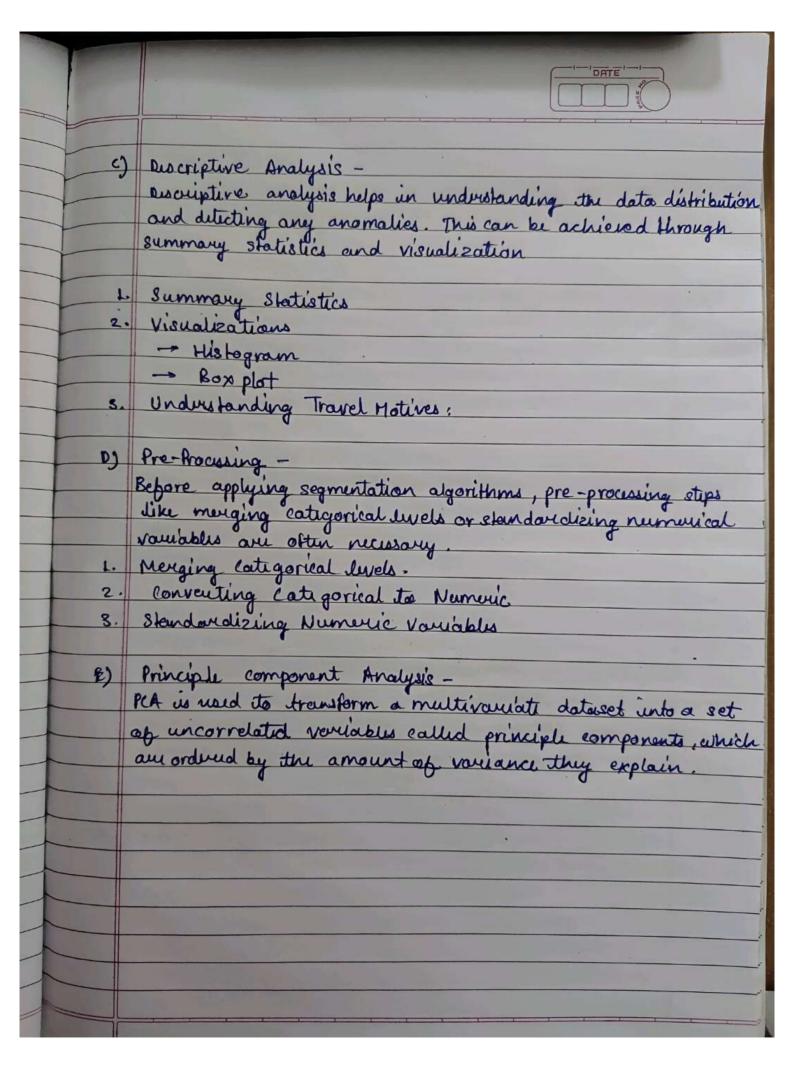It consist of criteria like age, gender, income and education
can be useful for certain industries. while easy to determine,
they often don't fully explain product preferences.

3. Psychographic segmentation -
Psychographic segmentation groups consumers by psychological
traits such as beliefs, interests and benefits sought. This approach
, including benefit and lifestyle segmentation, better reflects
reasons for consumers behaviour but is more complex to implement.

4. Behavioral segmentation -
Behavioral segmentation uses actual or reported behaviour. It
directly reflects the behavior of interest, making it highly
relevant.

* Data for survey studies -
Survey data is often used in market segmentation analysis
due to its affordability and ease of collection. However, survey
data can be contaminated by various biases, potentially affecting
the quality of segmentation analysis.

1. choices of variables -
Carefully selecting segmentation variables is crucial for accurate
market segmentation. In data - driven segmentation, all
relevant variables should be included while avoiding unnecessary
ones. Including too many variables can lead to respondant
fatigue and lower quality responses. Unnecessary responses
also increases the complexity of segmentation process without
adding valuable information, making it harder for algorithm
to identify correct segments.

2. Response options –

The type of response options provided in survey impacts the data analysis process. Metric and binary response options are preferred for segmentation analysis because they allow for clearer distance measurements between responses.

3. Response Styles –

Response styles are systematic tendencies in answering survey questions that can introduce bias, such as consistently choosing extreme options or agreeing with all statements. These bias affect segmentation result.

4. Sample Size –

Adequate sample size is critical for accurate market segmentation. Insufficient sample size makes it difficult for algorithms to identify the correct no of segments.

* Data from Internal Sources –

Internal data, such as scanner data, booking data and online purchase data, offers valuable insights based on actual consumer behaviour. This data is typically unbiased by memory or response biases and is often automatically generated.

* Data from Experimental studies –

This data can come from field or laboratory experiments, such as testing responses to advertisements or conducting choice experiments and conjoint analyses. These studies help understand consumer preferences and the impact of different product attribute on choices, providing information for segmentation.

step – IV

* Exploratory Data Analysis and Data cleaning

A) Data Exploration –

The primary step in analyzing the data involves reading and inspecting it to understand its structure and content. We use a dataset containing travel motives reported by 1000 australian residents regarding their last vacation.

The steps used for the following are :–

1. Reading the data
2. Inspecting the data

The dataset used was "vacation.csv". The columns of the dataset include demographic information such as Gender, Age and Income along with travel motives like "rest and relax" and "luxury/bespoilt".

B) Data Cleaning –

Data cleaning ensures that the dataset is free from inconsistencies and errors. For instance, we can verify that numeric values fall within expected ranges and categorical variables contain permissible values.

Some of the steps are :–

1. Checking numeric ranges
2. Reordering categorical variables.
3. Verifying the transformations.

c) Descriptive Analysis -
Descriptive analysis helps in understanding the data distribution and detecting any anomalies. This can be achieved through summary statistics and visualization

1. Summary Statistics
2. Visualizations
   → Histogram
   → Box plot
3. Understanding Travel Motives:

D) Pre-Processing -
Before applying segmentation algorithms, pre-processing steps like merging categorical levels or standardizing numerical variables are often necessary.
1. Merging Categorical levels.
2. Converting Categorical to Numeric
3. Standardizing Numeric Variables

E) Principle component Analysis -
PCA is used to transform a multivariate dataset into a set of uncorrelated variables called principle components, which are ordered by the amount of variance they explain.

Report By –

Pradnya Gaware

Market Segmentation

- ➢ Step 1 :- deciding (not) to segment
  - As everything has both possibilities positive and negative market segmentation also has its pros and cons.
  - It is suggested to do a complete market survey of every prospect of the business.
  - Before starting with it one has to be sure of the benefit and increase in profit they will achieve after this procedure.
  - Market segmentation needs a lot of study, money and time. It is an expensive process as it includes a lot of people, printing and finding resources etc. ensure whether you want to do the business as full time job or it's just a spurn of the moment before investing in a long term and expensive process such as market segmentation.
  - First start with your product before modifying or comparing your product with others, organize it according to the market or target a specific area of market. This will maximise the output the procedure.
  - Implementation barriers :-
    - → Lack of expertise and guidance - always include seniors and experienced people.
    - → Lack of orientation within organisation – make sure everyone is ready to co-ordinate and can accept the change.
    - → Lack of training – this will lead to a complete failure of the process.
    - → Lack of money – financial capability to invest.

  - To achieve successful market segmentation analysis
    - → Make a checklist of everything divide the roles to everyone according to their profile.
    - → Set timelines for the tasks.
- ➢ Step 2 :- specifying the ideal target segment
  - Third step of market segmentation depends on the user input, and specifying ideal target is important for user input so it should be included.
  - Further steps depend on this step most importantly third and eighth step.
  - It includes very essential knock-out criteria, which eliminates most of the ideal and unproductive perspective.
  - Segment must be :-
    - → Homogenous – include persons with same thinking and personality.
    - → Distinct – members of one segment should be different from members of another segment.
    - → Capable of satisfying the members requirements.
    - → Capable of finding and identifying the members at the market place during a survey.
    - → Have good communication with the members and keep in contact to inform any changes of marketing mix.
  - Include the team members, executive directorate and advisory committee.
  - Attractiveness criteria is one of the important aspect of the process, so let the team members decide it according the situation.

- Follow a structured flow for the process. Make a team of 2-3 people to report at every stage which will help in improvising and carry out discussions.
- ➢ Step 3 :- Collecting data
  - → Segmentation variable is distinguished as two segments one for men and another for women.
  - → Descriptor variables are the personal characteristics of the consumers other than that are called as the segmentation variable.
  - → Even if the data is known it is difficult to assign the correct segment to the consumer and distinguish between the segments.
  - → Data collected from survey study and other multiple sources is called empirical data.
  - → But survey study is not a reliable source of data instead increase and invest in other sources to retrieve the actual customer data.
- Segmentation criteria
  It is wider range of consumers which divides buyers into group or segments with similar requirements. It enables companies to target different categories of consumers.
- Socio- demographic segmentation :-
  - → It is refers to spitting up audiences into different groups based on their basic personal observable differences.
  - → Eg :- age, gender, occupation, marital status, income, education.
  - → This information is easily available so it is low-cost and easy to obtain.
  - → Can be obtained directly asking the customers or using third party data providers.
  - → Example, deodorant company manufactures same product it as men and women according to their specifications.
- Geographic segmentation :-
  - → Dividing the market based on a geographical area.
  - → Location of the consumer helps better to understand their needs and publish location specific ads.
  - → Eg :- ads of body warmers, sweaters in cold areas whereas ads of coolers, and cold beverages in hot areas.
  - → This can be divided by using the information like country, state or zip code.
  - → Consumers can also be classified by the characteristic of the area they live in for eg :- climate, population, rural, urban or suburban.
- Behavioural segmentation :-
  - → Divides customers as their behaviour pattern as they interact with the organisation.
  - → It studies the behaviour which includes their knowledge of attitude towards, use of, response, service, promotion or brand.
  - → Important behaviour to notice :-
    - ▪ Purchasing and usage
      Example, observing when the consumer is ordering food online the weekends or the paydays give the offers or provide discount coupons in this time period.

- - Benefits sough :-
    This defines different benefits considered by different consumers. Example, some people enjoy food at home by ordering from a source and eat at their comfort place but some enjoy going out and eating at the restaurant while enjoying the ambience.
  - Customer loyalty :-
    Consumers loyal to your business should not be overlooked. Establish a reward program for them for eg :- domino's gives a pizza of the customer's choice on the seventh order from their app.
- Psychographic segmentation :-
  → It is somewhat similar to socio-demographic segmentation but it deals with the characteristics which are more mental and emotional.
  → It includes personality traits, interests, beliefs, attitudes, lifestyles.
  → For eg :- luxury brands the brand targets only the people from high income source as the brand reflects their standard of living.
- Data from survey studies are easy and cheap source of information but it has some loopholes, so produce maximum benefits from this include:-
  → Choice of variables
    - Include only most essential and necessary variables only to avoid long and complicated questionnaires. This will make the task easy for the reviewers.
    - The unnecessary variables are also known as noisy or masking variables as this divert the respondent's attention as well as the segment algorithm from its desired result.
- Reponse options :-
  → Binary data, in the form 0's and 1's are more specific and helpful.
  → Data selected from a range of categories refers to nominal variables.
  → Responses indicated by numbers generate metric data.
- Response styles :-
  → This helps to target a market segment.
  → Include a wide range of response styles to make it more attractive for the customers.
  → More study, observation and analysis is required to introduce a response style.
- Sample size :-
  → This helps to determine the number and nature of segments in the data set.
  → Sample size should be 2^p (better 5 times 2^p) 'p' is the no. of segmentation variables.
- Data from internal sources :-
  → Organisations have easy access to internal data. Eg, online purchase history data.
  → This data is automatically generated and saved and also more accurate than a consumer's brain.
  → Drawback of this is it cannot pretend or predict customer's future requirements.

- Data from experimental studies :-
  → Data obtained from a experiment, that is a observational experiment is conducted on a group of people to record their response and feedback.
  → This data can be used to form a criteria in segmentation.
- ➢ Step 7 :- Describing segments
  - Developing a complete picture of market segments.
  - This step takes information from previously performed steps 2 and 3 i.e. specifying the ideal market segment and collecting data.
  - This defines the difference between market segments and adding the information of segments in detail and cross verify with every available variable.
  - Difference between the segments can be studied in two ways descriptive statistics and including visualizations.
  - Using visualization
    → Graphical statistics gives correct and interpreted data which is easy to analyse.
    → Displays the survey result in easy to understand format.
    → Basic approaches are :-
      1) Nominal and ordinal descriptor variables (gender, education, country)
        ▪ These are automatically loaded descriptive variables in the data set.
        ▪ Segment membership for all respondents is must add it as a categorical variable to the data frame of descriptive variables.
        ▪ Comparing proportions is difficult without cross tabulation.
        ▪ Disadvantage of this approach is the absolute sizes of the market segment can no longer be seen on the y-axis, mosaic plot is the solution for this.
        ▪ Mosaic plot gives more accurate segment size, this can include more than 2 descriptor variables and integrate elements of experimental design.
        ▪ Adding colour in the visuals for eg. Highlighting cells of a graphical representation helps in differentiating and understanding frequencies.
      2) Metric descriptor variable (age, money spent, days of vacation)
        ▪ Conditional plots are more suitable for visualising differences between market segments using metric descriptor variables.
        ▪ Additional insights can be derived by using a parallel box-and-whisker plot; it shows distribution of the variables separately for each segment.
    → Testing for segment differences in descriptor variables
      ▪ Simple statistical tests and a series of independent tests for each variable of market segment.
      ▪ Segment membership of respondents is the output of the segment extraction.
      ▪ Association between segment membership and metric variables is visualized using parallel boxplots.

- Method for testing for significant differences in the means of more than 2 groups is analysis of variance (ANOVA).
→ Predicting segments from descriptor variables
  - To learn more about market segments try to predict segment membership from descriptor variables.
  - Use of regression model with segment membership of categorical dependent variables.
  - Methods developed in statistics machine learning can be used for classification and supervised learning respectively.
  - Regression analysis is the basis of prediction models. It assumes that a dependent variable '*y*' can be predicted using independent variables or regressors *x1,.......,xp;*
  - Regression models differs with respect to the function *f(.)*, linear regression model is the basic.
→ Binary logistic regression
  - We can formulate a regression for binary data using generalised linear models by assuming that $f(y|\mu)$ is the Bernoulli distribution with success probability .
  - Uncertainty – probabilities do not overlap for the two most extreme values of moral obligation. This means that including moral obligation in the logistic regression model significantly improves model fit.
→ Multinomial logistic regression
  - It can fit a model that predicts each segment simultaneously . because segment extraction typically results in more than two market segments, the dependent variable *y* is not binary. It is categorical and assumed to follow a multinomial distribution with the logistic function as link function.
→ Tree based methods
  - Classification and regression trees(CARTs) are an alternative modelling approach for predicting a binary or categorical dependent variable given a set of independent variables.
  - It uses stepwise approach, at every step consumers form different groups also known as recursive partitioning.
  - Tree constructing algorithm differs with respect to:
    - ✓ Binary vs. multi-way splits.
    - ✓ Selection criteria for next step split.
    - ✓ Selection criteria for the split point of the independent variable.
    - ✓ Stopping criteria for the stepwise procedure.
    - ✓ Final prediction at the terminal node.

Code Conversion

1.Rahul Yadav

https://github.com/rahul60286/Market-Segmentation

2.Pamal Kr Mondal

https://github.com/pamalmondal/McDonalds-Market-Segmentation/tree/main

3.Johan Doley

https://github.com/johandoley/Mcdonald-Project-2

4.Sahil Sudhir Pawar

https://github.com/21CODRAPTOR/McDonalds_Case_Study.git