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Market Segmentation analysis

Step 1: Deciding (not) to Segment

Implications of Committing to Market Segmentation

1. **Market Segmentation Implications:**
   - Market segmentation is a significant marketing strategy, but it may not always be the best decision for an organization.
   - Implications should be carefully considered before investing time and resources in segmentation analysis.

2. **Long-Term Commitment:**
   - The key implication is that organizations need to commit to the segmentation strategy on a long-term basis.
   - Market segmentation is likened to a marriage, requiring commitment, willingness, and the ability to make substantial changes and investments.

3. **Costs and Benefits Consideration:**
   - Cahill (2006) emphasizes that segmenting a market comes with costs such as research, surveys, focus groups, package and advertisement design.
   - The decision to segment should be justified by the expected increase in sales, ensuring that the benefits outweigh the expenses.

4. **Required Changes:**
   - Pursuing a segmentation strategy may necessitate changes like developing new products, modifying existing ones, adjusting pricing and distribution channels, and revising communication strategies.
   - These changes can also influence the internal structure of the organization, requiring adjustments to align with targeted market segments.

5. **Executive Decision and Communication:**
   - Due to the significant organizational commitment involved, the decision to explore a market segmentation strategy should be made at the highest executive level.
   - It must be systematically communicated and reinforced across all organizational levels and units to ensure alignment and understanding.

Implementation Barriers

Barriers to Successful Market Segmentation Implementation:

1. **Senior Management Barriers:**
   - Lack of leadership, pro-active championing, commitment, and involvement by senior leadership can undermine successful market segmentation.
   - Inadequate allocation of resources by senior management for both initial analysis and long-term implementation hinders progress.

2. **Organizational Culture Barriers:**
   - Organizational culture factors such as a lack of market or consumer orientation, resistance to change, lack of creative thinking, poor communication, and insufficient sharing of information can impede implementation.
   - Short-term thinking, reluctance to make changes, and office politics are identified as barriers.

3. **Training and Expertise:**
   - Lack of understanding and awareness of market segmentation foundations and consequences, especially among senior management and the segmentation team, can lead to failure.
   - The absence of a formal marketing function or a qualified marketing expert, as well as a qualified data manager and analyst, can be significant obstacles.

4. **Objective Restrictions:**
   - Objective restrictions, such as limited financial resources or an inability to make required structural changes, may pose challenges.
   - Strategic decision-making becomes crucial for companies with limited resources to pick the best opportunities.

5. **Process-Related Barriers:**
   - Lack of clarity in segmentation exercise objectives, poor planning, absence of structured processes, unallocated responsibilities, and time pressure hinder effective market segmentation.
   - Doyle and Saunders (1985) emphasize the importance of making segmentation analysis easy to understand for management acceptance.

6. **Proactive Measures:**
   - Identifying barriers early in the segmentation study allows for proactive removal.
   - If barriers persist and cannot be addressed, the option of reconsidering the exploration of market segmentation as a potential future strategy should be considered.

Step 1 Checklist

Checklist for Successful Market Segmentation:

- The checklist encompasses tasks and essential questions, acting as knock-out criteria.
- Key Example: If an organization lacks market orientation, even a well-executed market segmentation analysis may face challenges in successful implementation.
- Significance: The checklist serves as a guide to assess fundamental prerequisites and potential barriers, ensuring that necessary conditions are met before initiating a market segmentation strategy.

Step 2: Specifying the Ideal Target Segment

Segment Evaluation Criteria

1. User Involvement Throughout Segmentation Process:
The success of market segmentation analysis depends on continuous user input, involving them in various stages rather than limiting their contribution to just the beginning or end of the process. This approach integrates user perspectives throughout, emphasizing the importance of user involvement in both the initial briefing and the development of the marketing mix.

2. Conceptual Contribution:
This contribution involves defining two sets of segment evaluation criteria: knock-out criteria, which are non-negotiable features for potential target segments, and attractiveness criteria, which are used to assess the relative appeal of remaining segments that meet the knock-out criteria.

4. Distinction Between Knock-Out and Attractiveness Criteria:
The distinction between knock-out criteria and attractiveness criteria is highlighted. Knock-out criteria are fundamental, non-negotiable features that a segment must possess for consideration, while attractiveness criteria are used to evaluate and compare the appeal of segments that meet the knock-out criteria. The literature often lacks a clear differentiation between these two types of criteria, but they play a critical role in shaping the segmentation strategy.

Knock-Out Criteria

1. Purpose of Knock-Out Criteria:
Knock-out criteria serve the purpose of determining whether market segments resulting from segmentation analysis qualify for assessment using segment attractiveness criteria.

2. Key Knock-Out Criteria:

- Homogeneity: Members within the segment must be similar to each other.
- Distinctiveness: The segment must be distinctly different from other segments.
- Size: The segment must be large enough to justify the customization of the marketing mix.
- Matching Organizational Strengths: The segment should align with the organization's capabilities to satisfy its members' needs.
- Identifiability: Members of the segment should be identifiable in the marketplace.
- Reachability: There must be a means to connect with segment members to make the customized marketing mix accessible to them

4. **Understanding and Specification:**
It is crucial for senior management, the segmentation team, and the advisory committee to understand knock-out criteria. While many of these criteria do not need further specification, certain aspects, like the minimum viable target segment size, require specific definition and agreement to ensure clarity in the segmentation process.

Attractiveness Criteria

1. **Diversity of Attractiveness Criteria**:
The segmentation team has the flexibility to choose from a variety of attractiveness criteria based on their specific situation, allowing for a customized approach to evaluating potential market segments.

2. **Non-Binary Assessment**:
Attractiveness criteria are not binary; instead, each market segment is rated on a continuum, indicating varying levels of attractiveness with respect to specific criteria. The overall assessment across all criteria collectively determines whether a market segment is selected as a target in Step 8 of the market segmentation analysis.

Implementing a Structured Process

1. **Determining Segment Attractiveness and Organizational Competitiveness Values:**
The segmentation team is responsible for determining values related to segment attractiveness and organizational competitiveness, recognizing the absence of a universally applicable set of criteria for all organizations.

2. **Negotiation and Agreement on Criteria**:
Criteria contributing to both segment attractiveness and organizational competitiveness need to be negotiated and agreed upon. Exploring a wide range of possible criteria is essential before identifying the most important ones for the organization. McDonald and Dunbar (2012) recommend using no more than six factors as the basis for these criteria.

3. **Team Collaboration for Optimal Results:**
Ideally, a team of individuals should be involved in this task, with a core team proposing an initial solution. The choices are then presented to the advisory committee, representing various organizational units, for discussion and potential modification.

4. **Inclusion of Representatives from Various Units:**
Representatives from different organizational units are included in the process due to their diverse perspectives on the business. This diversity ensures varied viewpoints during deliberations and recognizes that the implementation of the segmentation strategy will impact all organizational units.

5. Benefits of Early Selection of Attractiveness Criteria:

The team aims to compile approximately six segment attractiveness criteria, each assigned a weight to indicate its importance relative to other criteria, following a typical approach of team members distributing 100 points across criteria, with negotiations for agreement. Approval from the advisory committee, representing diverse perspectives, is sought for optimal criteria specification.

Step 3: Collecting Data

Segmentation Variables

1. Role of Empirical Data in Market Segmentation:

Both commonsense and data-driven market segmentation rely on empirical data to identify or create market segments and later provide detailed descriptions of these segments.

2. Segmentation Variables in Commonsense Segmentation:

In commonsense segmentation, the term "segmentation variable" refers to a single characteristic of consumers in the sample.

3. Descriptor Variables in Commonsense Segmentation:

Other personal characteristics in the data, such as age, number of vacations taken, and information about benefits sought during vacations, are known as descriptor variables. These variables are crucial for describing the segments in detail, aiding in the development of an effective marketing mix targeting each segment.

4. Difference Between Commonsense and Data-Driven Segmentation:

The key distinction lies in the number of segmentation variables used. Commonsense segmentation typically relies on a single variable (e.g., gender), while data-driven segmentation involves multiple segmentation variables. These variables serve as the foundation for identifying naturally existing or artificially created market segments, providing a more comprehensive approach for organizations.

Segmentation Criteria

1. Early Decision on Segmentation Criterion:

Before extracting segments or collecting data, the organization must decide on a segmentation criterion. The term "segmentation criterion" here encompasses the broader concept of the information nature used for market segmentation, beyond a single measured value.

2. Common Segmentation Criteria:

Geographic, sociodemographic, psychographic, and behavioral criteria are among the most common segmentation criteria. The choice of segmentation criterion is a strategic decision that requires market-specific knowledge and cannot be easily delegated to external consultants or data analysts.

3. Choosing the Simplest Approach:

Given the various segmentation criteria available, the recommendation is to use the simplest possible approach that aligns with the product or service. Few guidelines exist for determining the most appropriate criterion, but the suggestion is to choose what works for the product or service at the least possible cost. The emphasis is on practicality and effectiveness rather than the perceived sophistication of the segmentation approach.

socio-Demographic Segmentation

1. Socio-demographic Segmentation Criteria: Typical socio-demographic criteria include age, gender, income, and education.

2. Examples of Industry Relevance: Socio-demographic segments prove particularly useful in industries such as luxury goods (linked to high income), cosmetics (linked to gender), baby products (linked to gender), retirement villages (linked to age), and tourism resort products (linked to the presence of small children).

Psychographic Segmentation

1. Complexity of Psychographic Criteria:

Psychographic criteria are inherently more complex than geographic or socio-demographic criteria, as a single characteristic may not sufficiently capture the psychographic dimension of interest. Consequently, psychographic segmentation studies often utilize multiple variables, such as various travel motives or perceived risks during vacations.

2. Reflectiveness of Consumer Behavior Differences: Despite its complexity, the psychographic approach offers the advantage of being more reflective of the underlying reasons for differences in consumer behavior. For instance, understanding tourists' primary motivations, such as a desire to learn about other cultures, can predict preferences for cultural holidays in destinations with ample cultural treasures.

3. Challenges and Dependency on Measures: Challenges in psychographic segmentation include the increased complexity of determining segment memberships for consumers. Additionally, the effectiveness of the psychographic approach relies heavily on the reliability and validity of the empirical measures used to capture the psychographic dimensions of interest.

Behavioral Segmentation

1. Behavioral Approach to Segment Extraction:

Another approach for segment extraction involves directly searching for similarities in behavior or reported behavior. Various behaviors, such as prior product experience, purchase frequency, amount spent per purchase, and information search behavior, can be employed as segmentation variables.

2. **Superiority of Behavioral Criteria:**

In a comparison of segmentation criteria, behavioral variables, particularly behaviors reported by tourists, were found to be superior to geographic variables. The key advantage of behavioral approaches lies in using actual behavior, rather than stated or intended behavior, as the basis for segment extraction.

3. **Significance of Actual Behavior:**

The primary advantage of behavioral segmentation is that it directly utilizes the behavior of interest as the basis for segment extraction. This approach ensures that individuals are grouped based on the most relevant and impactful similarities in their behavior.

Step 4: Exploring Data

1. **Purpose of Data Exploration:**

Data exploration is a crucial stage after data collection, serving to clean and preprocess the data. Its primary goal is to guide the selection of the most appropriate algorithm for extracting meaningful market segments.

2. **Technical Objectives of Data Exploration:**

Identify Measurement Levels: Determine the nature of the variables, such as whether they are categorical, ordinal, or continuous, to inform the choice of appropriate statistical methods and models.

Univariate Distribution Analysis: Investigate the distribution of each variable individually to understand its central tendency, spread, and identify potential outliers or patterns.

Assess Dependency Structures: Explore relationships between variables to uncover dependencies or correlations, which can influence the choice of segmentation algorithms.

3. **Preprocessing and Data Preparation:**

Data exploration involves pre-processing and preparing the data for use as input in segmentation algorithms. This step ensures that the data is appropriately formatted, handles missing values, and scales or transforms variables as needed to enhance the performance of segmentation methods.

4. **Insights for Segmentation Methods:**

Results from the data exploration stage provide valuable insights into the data's characteristics and guide the selection of suitable segmentation methods. Understanding the distribution, relationships, and nature of variables aids in choosing algorithms that align with the data's properties, enhancing the accuracy and meaningfulness of market segment extraction.

Data Cleaning

1. **Initial Data Cleaning:**

Before starting data analysis, the first step involves ensuring data integrity. This includes checking for accurate recording of values and verifying consistent labels for categorical variables. It aims to identify and rectify errors or inconsistencies in the data that may affect the analysis.

2. Validation of Metric Variables:

For metric variables, a critical aspect of data cleaning is validating the range of plausible values. This process involves confirming that the recorded values fall within the expected range for each metric variable, based on prior knowledge or domain expertise. Any outliers or implausible values may be flagged for further investigation and correction.

Descriptive Analysis

1. Importance of Data Familiarity:

Prior familiarity with the dataset is crucial to avoid misinterpretation of results from complex analyses. Understanding the data context and structure aids in drawing accurate conclusions.

2. Descriptive Analysis Tools in Statistical Software:

Statistical software packages, such as R, offer a rich set of tools for descriptive analysis. The `summary () ` command in R provides a numeric summary of the data, including range, quartiles, and mean for numeric variables. It also offers frequency counts for categorical variables, along with the number of missing values, offering a comprehensive overview.

3. Descriptive Numeric and Graphic Representations:

Descriptive analysis utilizes both numeric and graphic representations. For numeric data, tools such as histograms, boxplots, and scatter plots are valuable for understanding distributions, central tendencies, and relationships. Bar plots are particularly useful for visualizing frequency counts of categorical variables, providing insights into the distribution of different categories.

Pre-Processing

Categorical Variables

Pre-processing of Categorical Variables:

In data pre-processing, two common procedures for categorical variables are often employed – merging levels to reduce complexity and converting categorical variables to numeric ones, where applicable, to facilitate analysis. These steps aim to streamline categorical data for more effective and meaningful use in subsequent analyses.

Numeric Variables

The range of values of a segmentation variable affects its relative influence in distance-based methods of segment extraction.

Principal Components Analysis

1.PCA Objective and Transformation:

Principal Components Analysis (PCA) is a technique that transforms a multivariate dataset containing metric variables into a new dataset with uncorrelated variables known as principal components. These components are ordered by importance, with the first containing the most variability, the second the second most, and so on. Despite this transformation, the relative

positions of observations remain the same, preserving the data's structure.

2. **Dimensionality Reduction and Variable Importance:**
PCA helps in dimensionality reduction by generating fewer variables (principal components) than the original dataset. The first few components capture the majority of variability, allowing for a simplified representation of the data. This reduction in dimensionality is particularly useful for visualization purposes.

3. **Matrix Basis and Scaling Considerations:**
PCA operates on the covariance or correlation matrix of numeric variables. If variables are measured on the same scale with similar data ranges, either covariance or correlation matrix can be used interchangeably. However, if data ranges differ, it is advisable to use the correlation matrix, which is equivalent to standardizing the data.

4. **Application for Visualization:**
The primary application of PCA is often for visualizing high-dimensional data by projecting it into lower dimensions. This enables analysts to gain insights into the overall structure of the data while retaining most of the important information. PCA is commonly used in exploratory data analysis and data visualization to simplify complex datasets.

Step 5: Extracting Segments

Grouping Consumers

1. **Exploratory Nature of Market Segmentation Analysis:**
Data-driven market segmentation analysis is inherently exploratory, driven by the need to uncover patterns and structures within consumer datasets. Consumer data sets are often complex and not well-structured, reflecting the diverse nature of consumer preferences.

2. **Challenges in Consumer Preference Visualization:**
Visual representations, such as two-dimensional plots of consumers' product preferences, may not reveal clear groups of consumers. Instead, consumer preferences tend to be spread across the entire plot, posing challenges for identifying distinct segments.

3. **Dependency on Assumptions and Methodology:**
Extracting market segments from unstructured consumer data relies heavily on the assumptions made about the underlying structure of segments. Different segmentation methods, driven by various assumptions, can yield varied results. The choice of an extraction algorithm significantly influences the segmentation solution.

4. **Interplay of Data and Segmentation Methods:**
The outcome of a market segmentation analysis is influenced not only by the inherent structure of the data but also by the specific segmentation method chosen. The interplay between data characteristics and the segmentation algorithm shapes the final segmentation solution, emphasizing the need for careful consideration of both factors in the analysis.

Distance-Based Methods

1. **Objective of Market Segmentation:**
Market segmentation seeks to group consumers based on similarities in their needs or behaviour, as exemplified in the context of tourists with similar patterns of vacation activities.

2. **Individual Profiles and Similarity:**
In the given example, Anna and Bill share an identical profile, making them candidates for the same segment. Michael, however, deviates from the others by lacking interest in beach activities, differentiating him.

3. **Importance of Distance Measure:**
To identify groups of similar tourists, a mathematical notion of similarity or dissimilarity is crucial. In this context, a distance measure is employed to quantify the dissimilarity between individual profiles.

4. **Role of Distance Measure in Grouping:**
The distance measure serves as a metric for determining the proximity or dissimilarity between individuals. In this case, it enables the identification of groups by highlighting the differences or similarities in vacation preferences, facilitating the segmentation of tourists with comparable patterns of behaviour.

Partitioning Methods

1. **Algorithm and Distance Measure in Clustering:**
The algorithms mentioned, including k-centroid clustering in the R package utilize the squared Euclidean distance as a metric to quantify dissimilarity between observations (consumers) in a dataset.

2. **Partitioning Clustering Methods Objective:**
Partitioning clustering methods aim to divide consumers into subsets or market segments. The goal is to group together consumers within the same segment who are highly similar, while ensuring that consumers in different segments are as dissimilar as possible.

3. **Representative of Market Segments - Centroid:**
In partitioning clustering algorithms, the representative of a market segment is commonly known as the centroid. For the k-means algorithm using squared Euclidean distance, the centroid is computed as the column-wise mean values across all members of the market segment.

4. **Data Structure and Variable Representation:**
The data set is structured with observations (consumers) in rows and variables (behavioural information or survey responses) in columns. This matrix representation allows for the application of clustering algorithms to identify groups of consumers with similar characteristics or preferences.

Hybrid Approaches

1. **Strengths of Hierarchical Cluster Algorithms:**
   No need to specify the number of market segments in advance.
   Visualization of similarities using dendrograms.

2. **Weaknesses of Hierarchical Cluster Algorithms:**
   High memory requirements in standard implementations.
   Difficulty in interpreting dendrograms with large sample sizes.

3. **Strengths of Partitioning Cluster Algorithms:**
   Minimal memory requirements, suitable for large datasets.

4. **Weaknesses of Partitioning Cluster Algorithms:**
   Requires the specification of the number of market segments in advance.
   Inability to track changes in segment membership across different solutions.

5. **Hybrid Segmentation Approach:**
   Initial use of a partitioning algorithm to handle datasets of any size, extracting a larger number of segments than desired.
   Discarding the original data and retaining only the centroids and segment sizes.
   Using the retained information as input for hierarchical cluster analysis.
   The hierarchical algorithm helps determine the optimal number of segments.
   Combining the strengths of both algorithms to overcome their individual weaknesses in terms of memory capacity and segment specification.

Step 6: Profiling Segments

Identifying Key Characteristics of Market Segments

1. **Purpose of Profiling:**
   Profiling is essential in data-driven market segmentation to understand and characterize the market segments obtained in the extraction step.

2. **Comparison with Commonsense Segmentation:**
In commonsense segmentation, profiles of segments are predefined based on common knowledge or intuition, while in data-driven segmentation, profiling is necessary to uncover and describe the characteristics of the segments identified through the extraction process.

3. **Exploration of Alternative Solutions:**
   During the profiling stage, the examination of various market segmentation solutions becomes crucial, especially when no inherent or natural segments are evident in the data.

4. **Importance of Correct Interpretation:**
   Achieving a correct interpretation of the identified segments is fundamental for making informed strategic marketing decisions, emphasizing the significance of thorough and accurate profiling.

Traditional Approaches to Profiling Market Segments

1. Presentation Challenges:

Data-driven segmentation solutions are commonly presented in two problematic ways: either oversimplified high-level summaries that may mislead with trivial information or overly complex tables containing exact percentages for each segmentation variable, making interpretation difficult.

2. Need for Effective Presentation:

There is a critical need for a presentation format that strikes a balance between simplicity and detail, providing meaningful insights without oversimplification or overwhelming complexity. Effective communication of data-driven segmentation results is essential for facilitating understanding and informed decision-making.

Segment Profiling with Visualisations

1. Role of Visualizations:

Visualizations play a crucial role in data-driven market segmentation by allowing a detailed inspection of segments for each solution. Statistical graphs aid in interpreting segment profiles and contribute to the assessment of the overall usefulness of a segmentation solution.

2. Critical Decision in Solution Selection:

The segmenting process generates numerous alternative solutions, making the selection of one solution a critical decision. Visualizations assist in this decision-making process by providing insights into the characteristics of segments and supporting the evaluation of each solution's effectiveness.

Identifying defining characteristics of Market Segments:

1. A segment profile plot is a useful tool for understanding the defining characteristics of each market segment. It visually represents the differences between each market segment and the overall sample.
2. Another option is to order segmentation variables by similarity of answer patterns, which can be achieved by clustering the columns of the data matrix using Ward's method.
3. The segment profile plot is a panel plot, with each of the six panels representing one segment.
4. It is worth investing extra time in presenting market segmentation analysis results as a well-designed graph.
5. Good visualizations facilitate interpretation by managers who make long-term strategic decisions based on segmentation results, which require substantial financial commitments to the implementation of a segmentation strategy.

Checklists:

- Use the selected segments from Step 5.
- Visualize segment profiles to learn about what makes each segment distinct.
- Use knock-out criteria to check if any of the segments currently under consideration should already be eliminated because they do not comply with the knock-out criteria.