Market Segmentation Analysis

(Understanding It, Doing It, and Making It Useful)

Weekly task report submitted by Team Manoj

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Introduction

What is market segmentation?

Market segmentation is the practise of breaking down a large target market into more narrowly defined subgroups or segments based on shared traits or requirements. The goal of market segmentation is to recognize and better serve the unique tastes, tendencies, and needs of several client groups within a broader market.

What is market segmentation Analysis?

The process of examining and assessing the various market segments within a bigger market goal is known as market segmentation. In order to understand each segment's distinctive qualities, actions, hobbies, and calls information and understanding about each segment must be gathered. By using market segmentation analysis, businesses can make sound choices and create marketing plans that are suited to the distinctive wants of each category.

Summary

Step 1 : Deciding (not) to Segment

Implications of Committing to Market Segmentation The main repercussion is that a business must commit over the long term to the segmentation plan. It may be necessary to revise all market communications as well as the development of new products, modifications to the designs of already-existing ones, price reductions, changes to the

product's distribution channels, and price reductions. These adjustments will therefore probably have an effect on the internal structure of the

company, which could need to change as a result of, say, narrowing the focus to a few different market sectors.

Implementation Barriers The first set of barriers concerns high-ranking employees. Senior leadership's absence from the market segmentation process compromises its Performance by lacking leadership, proactive championing, commitment, and involvement. Another set of obstacles has to do with organisational culture. The following factors have been identified as impeding the successful implementation of the market-oriented approach: a lack of market or consumer orientation, resistance to change and novel ideas, a lack of creative thinking, poor communication and a lack of information and insight sharing across organisational units, short-term thinking, an unwillingness to make changes, and office politics.

Step 2 : Specifying the Ideal Target Segment

This layer of market segmentation analysis is mainly focused on user input and Participation throughout the process. It highlights the importance of including user input at various phases of the research rather than just at the beginning or end. The organization has to actively engage in the study, specifically in the second phase where segment evaluation criteria are defined.

The initial set of criteria, called knock-out criteria, is non-negotiable characteristics that segments must have for the organization to look into targeting them. These characteristics are important criteria for segment selection. The attractiveness criteria analyse the corresponding appeal of the left portions that satisfy the knock-out criteria. While the literature frequently needs to differentiate between these types of criteria, it does provide a wide range of potential segment assessment criteria at various degrees of detail. These criteria are critical in directing later processes in the analysis, notably data collection and target segment selection. Overall, the user participation in creating and implementing segment assessment criteria, as well as the organization’s input, are crucial to ensuring that

market segmentation analysis delivers appropriate knowledge for the organization's marketing strategy.

- Knock-Out Criteria

Certain criteria, such as the minimum feasible target segment size, are clear and do not require additional definition, but some, like the knock-out criteria, do. These knock-out criteria must be well understood by senior management, the segmentation team, and the advisory committee. knock-out criteria are used as an initial screening method to decide which market segments should be evaluated further. These criteria guarantee that the segments chosen are significant, quantifiable, accessible, homogenous, distinct, large enough, aligned with organizational strengths, recognizable, and attainable. Clear knowledge and characterization of these criteria are required for the market segmentation process to be successful.

- Attractiveness Criteria

Market segmentation is the process of examining several factors to evaluate the attractiveness of distinct market segments. These criteria go beyond basic binary ratings and entail measuring the attractiveness of each part in accordance to specified factors. This signifies that segments are neither compliant nor noncompliant with these criteria. Instead, each market sector is given a grade depending on how well it matches a certain criterion. In the last phase of market segmentation analysis, the ratings across all criteria are used to assess if a market segment should be chosen as a

target segment. In summary, selecting target segments entails assessing a wide variety of attractiveness factors and ranking the attractiveness of each segment based on these criteria.

Step 3: Collecting Data

The chapter talks about how empirical data can be used to segment markets both intuitively and using data. Market segments are defined and created using empirical data, which also provides in-depth descriptions of these segments.

In a segmentation that makes sense, one consumer trait is employed as the dividing variable. For instance, using gender as the segmentation variable, the sample may be split into segments of men and women. Descriptor variables refer to the additional personal information that is contained in the data, such as age, the quantity of vacations taken, and details on desired benefits while on vacation. To fully describe the segments, these descriptor variables are used. Descriptor variables play a crucial part in gaining this insight, which is necessary for developing effective marketing strategies that are well-aware of the segments. Socio- demographic statistics and information on media usage are examples of descriptor variables that can be used by marketers to interact with their target markets more successfully.

In conclusion, the traditional approaches and data-driven methods to market segmentation employ empirical data as their basic building block. Segmentation factors divide the sample into market segments, and descriptor variables offer more information to the segment characteristics to help marketers create more precise marketing plans.

Rather than using the word segmentation variable, the phrase segmentation criterion is used in this context. The phrase segmentation variable refers to a single measured value, such as a single response in a survey or a single observed spending category. The definition of a segmentation criterion pertains to the type of data that is gathered to segment markets. It may also be related to a single idea, like the advantages desired. Because it involves prior knowledge, choosing which segmentation criterion to utilise cannot be simply delegated to a consultant or data analyst. regarding the market. Geographical, socio-demographic, psychographic, and behavioural segmentation factors are the most popular.

Geographic segmentation is frequently the most suitable method because it is straightforward. For instance, the national tourism organisation of Austria needs to speak Italian, German, Slovenian, Hungarian, and Czech in order to draw visitors from nearby nations. A highly practical justification for dividing tourists from several adjacent countries as separate segments is language disparities across nations. International businesses like

Amazon, which sells its Kindle online, offer interesting instances as well. Customers are prompted to select their place of residency before receiving more information that is specific to that nation on a single common web page. IKEA provides a similar selection of goods everywhere it operates, however there are minor variations in offers, prices, and the availability of online shopping. Age, gender, income, and education are among the sociodemographic segmentation factors education. In some businesses, socio-demographic groups can be quite helpful.

For instance, luxury products are often linked with wealth, while cosmetics are often even when men are the focus, both the female and male portions are handled very differently), gender-specific infant goods, and retirement communities (linked to age), tourism resort goods (linked to having a small whether or not they have children. Geographic or socio-demographic criteria are simpler than psychographic criteria by nature because it is difficult to identify just one aspect of a person. a person who may bring light to the relevant psychographic dimension. As a result, the majority of psychographic segmentation studies make use of many segmentation variables, such as various travel motivations and perceived hazards.

The main benefit of behavioural methods is that segment extraction can be based on the particular behaviour of interest if it is based on actual behaviour rather than declared behaviour or stated anticipated behaviour. Therefore, behavioural segmentation groups individuals based on the similarity that matters the most. A few key aspects that need to be considered when using survey data are :

1. Choice of variable: Considering carefully whether factors to add as segmentation variables for common sense segmentation or for data-driven segmentation, to the effectiveness of the market segmentation solution.

2. Response Options: The scope of the data accessible for subsequent studies depends on the survey response options given to respondents. Not all survey response alternatives are equally acceptable for segmentation analysis because many data analytic approaches are based on distance measures.

3. Response Styles: Responses to surveys exhibit a wide range of response patterns, including respondents' propensity to select extreme response options to choose the neutral option to check every box. Response types have an impact on segmentation outcomes since they frequently used segment extraction techniques are unable to distinguish between data entries expressing the respondent's belief and entries reflecting both the respondent's belief and a manner of replying.

4. Sample size: However, it is relatively simple to identify the number and kind of segments in the data set if the sample size is acceptable. Data from Internal Sources Organisations now have greater access to large volumes of insider information that can be gathered for market segmentation study. The data from grocery store scanners, reservations made through airline loyalty programmes, and online purchases are typical instances. Such data are more reliable because they reflect real customer behaviour rather than consumer assertions about their intentions or behaviour.

Data from Experimental Studies Field or lab experiments may generate experimental data. They may be the outcome of studies on how consumers react to particular adverts, for instance based on the reaction to the advertisement, a segmentation standard.

Step 4: Exploring Data

1. Data exploration: This step involves identifying the measurement levels of variables, investigating the distributions of variables, and assessing dependency structures between

variables. It helps in understanding the data and selecting appropriate segmentation algorithms.

2. Data cleaning: Before starting the analysis, data cleaning is performed to ensure that values are recorded correctly and consistent labels are used for categorical variables. Implausible values and incorrect data entries are checked and corrected. In the provided example, the income variable is re-ordered to ensure proper sorting of categories.

3. Descriptive analysis: Descriptive analysis involves summarizing the data using numeric and graphical representations. Numeric summaries provide information such as range, quartiles, mean, and frequency counts. Histograms, boxplots, bar plots, and mosaic plots are used for visualizing data. They help in understanding the distribution and characteristics of variables.

4. Pre-processing: Categorical variables may require pre-processing, such as merging levels or converting them into numeric variables if appropriate. Merging levels is useful when there are too many differentiated categories. Converting categorical variables to numeric may be done for ordinal data if the distances between scale points are assumed to be equal.

Overall, data exploration and cleaning are crucial steps to ensure the quality and suitability of data for market segmentation analysis. Descriptive analysis provides insights into the data, and pre-processing prepares the data for further analysis.

Step 5: Extracting Segments

Consumer data sets are often unstructured and heterogeneous, the process of data-driven market segmentation study is largely exploratory in nature. Preferences tend to be dispersed over the whole plot, as opposed to a two-dimensional plot of customer preferences, which frequently lacks identifiable consumer groupings. Because of the mix of exploratory methodologies and unstructured data, segmentation analysis findings strongly rely on assumptions about the underlying structure of the segments.

The extraction technique and segmentation method used have a substantial impact on the segmentation solution. Many market segmentation approaches are developed from cluster

analysis, in which market segments correspond to clusters. Choosing a suitable clustering approach demands matching the data analysis features of the resulting clustering with the researcher's individual requirements.

To have a thorough grasp of market segmentation solutions, it is necessary to investigate the findings of various clustering approaches. This investigation allows researchers to assess how different algorithms impose structure on retrieved segments, assisting in interpretation and decision-making. To summarise, in order to get relevant and actionable insights from a data-driven market segmentation research, both the underlying data and the extraction technique must be carefully considered.

- ❖ Distance Measures

A distance measure has to comply with a few criteria.

One criterion is symmetry, that is:

$d(x, y) = d(y, x)$.

A second criterion is that the distance of a vector to itself and only to itself is 0:

$d(x, y) = 0 \Leftrightarrow x = y$.

Euclidean distance is a popular distance measure in market segmentation studies. It denotes the "straight-line" distance between two places in two dimensions. This distance metric takes into account all dimensions of the vectors x and y, which indicate customer attributes or preferences. Manhattan distance, on the other hand, is called after the street grid layout in Manhattan and estimates the distance between two places by taking into account the grid-like pathways that would be used to go between them. It also considers all dimensions of the vectors x and y. In market segmentation analysis, both Euclidean and Manhattan distances are routinely used. The Euclidean distance is the shortest distance between two places in a straight line, whereas Manhattan distance takes into consideration grid-like routes.

These distance measurements are critical for identifying the similarity or dissimilarity of customer preferences or attributes, which aids in market segment identification.

- ❖ Hierarchical Methods

In market segmentation analysis, hierarchical clustering algorithms are frequently regarded as the most natural way to data categorization. These algorithms simulate how a person might split a collection of n observations (consumers) into k groups (segments). Market segmentation analysis, on the other hand, exists between the extremes of specific customer categories and a single, homogenous market.

Divisive hierarchical clustering starts with the entire data set X and divide it into two market groups. This procedure is repeated for each section, with sub-segments added until each consumer gets their own segment. Agglomerative hierarchical clustering, on the other hand, employs the opposite method. It begins with each customer representing their own market segment (n singleton clusters) and gradually combines the two closest segments at each stage until the final segment is formed.

Both algorithms provide a series of nested partitions, with each partition representing a grouping of observations, and each observation belonging to precisely one group. This partitioning sequence might have as little as one group (segment) or as many as n groups (segments). Because the partition with k+1 groups (segments) is produced from the partition with k groups by separating one of the existing groups, the partitions are considered nested.

Overall, hierarchical clustering approaches offer an organised and step-by-step approach to market segmentation study, allowing for the development of nested groups that increasingly separate customers based on their similarities and differences.

- ❖ Partitioning Methods

When dealing with larger data sets in market segmentation analysis, dendrograms become difficult to interpret, and the matrix of pairwise distances may exceed computer memory limitations. In such cases, clustering methods that generate a single partition are more appropriate than hierarchical clustering with nested sequences.

To overcome memory constraints, instead of calculating distances between all pairs of observations at the start of a hierarchical partitioning cluster analysis, a different approach is adopted. Only the distances between each consumer in the data set and the centre of the

segments are computed. This selective computation reduces the computational burden and allows for more efficient analysis, particularly for data sets containing more than 1000 observations (consumers).

- ★ Clustering with k-Means

k-Means Clustering is a type of unsupervised machine learning method that divides data into discrete groups based on similarities. The algorithm's core premise is straightforward to grasp and may serve as an excellent introduction to Market Segmentation utilising Clustering techniques.

How does k-Means Clustering function?

1. We specify the hyper-parameter k, which is the number of clusters into which we want our data to be grouped. 2. Next, k centroids, or cluster-means, are chosen at random. 3. Finally, the best centroid positions are identified. The following algorithmic loop does this: a. Assignment procedure: Assign each data point to the nearest centroid (determined as the data point's squared distance from the centroid) b.

As we can realize from our understanding of the algorithm that we need to declare the number of clusters, we want, beforehand for the algorithm to work. But usually in many business cases we do not know beforehand that in how many clusters we should divide our data.

So, a method called Elbow method is used to decide optimum number of clusters. In this method we plot inertia v number of clusters and at which number of clusters the plot’s slope change drastically is taken as optimum number of clusters as shown in Figure 2. Here, the measure of inertia is the sum of squared distance between each point and its cluster centre.

Step 6: Profiling Segments

In the context of market segmentation, profiling is the process of identifying the key characteristics of different market segments. It involves understanding the defining characteristics of each segment and comparing them to other segments. Profiling is particularly important for data-driven market segmentation, where segments are derived from the analysis of consumer behaviour data.

When using data-driven segmentation, the characteristics of resulting market segments are unknown until after the data analysis. Profiling helps in identifying these defining characteristics with respect to the segmentation variables. It involves characterizing each market segment individually and comparing them to one another.

Traditional approaches to profiling market segments often involve presenting large tables of percentages for each segmentation variable, which can be difficult to interpret and make it challenging to gain a quick overview of the key insights. In the provided example, Table 8.1 displays the mean values (percentages) of segmentation variables for each segment, allowing for a comparison between segments and the overall sample.

However, interpreting and comparing multiple segmentation solutions with tables can be tedious and time-consuming, especially when there are numerous segments and variables involved. To address this, visualizations are recommended for segment profiling. Graphical representations, such as segment profile plots, can provide a clearer and more intuitive understanding of the defining characteristics of each segment.

Segment profile plots visually depict how each market segment differs from the overall sample across various segmentation variables. Marker variables, which are particularly characteristic for a segment, can be highlighted in colour to make them stand out. The use of visualizations can simplify the interpretation of segment profiles and assist in making strategic marketing decisions.

Overall, profiling market segments is crucial for correctly interpreting segmentation results and making informed marketing decisions. Visualizations can greatly facilitate this process by providing a clearer understanding of the defining characteristics of each segment

Step 7: Describing Segments

Market segmentation analysis involves describing the identified market segments in detail. This process goes beyond segment profiling by using descriptor variables to provide a comprehensive profile of each segment. Descriptive statistics with visualizations and inferential statistics are the two main approaches used to describe market segments.

Visualizations such as stacked bar charts, mosaic plots, histograms, and box-and-whisker plots are used to illustrate differences in descriptor variables across segments. Cross-tabulations, stacked bar charts, and mosaic plots are employed for nominal and ordinal descriptor variables, while histograms and box-and-whisker plots are used for metric descriptor variables.

Accurate and detailed segment descriptions are crucial for developing customized marketing strategies. By understanding variables such as age, gender, past behaviour, preferred activities, media use, and expenditure patterns, marketers can effectively target and communicate with specific segments.

In addition to describing segments, the excerpt also discusses methods for testing and predicting segment differences in descriptor variables. Statistical tests, such as independent tests and chi-squared tests, are used to test for differences in descriptor variables across market segments. Analysis of variance (ANOVA) is employed to test for significant differences in means of metric variables. Regression models, including linear regression and binary logistic regression, can be used to predict segment membership based on descriptor variables.

The summary also introduces classification and regression trees (CARTs) as a type of tree-based method for predicting binary or categorical dependent variables. CARTs offer advantages such as variable selection, interpretability, and the ability to handle a large number of independent variables. However, their results can be unstable due to small changes in the data.

The process of constructing a CART involves recursive partitioning, where consumers are split into groups based on independent variables to create pure groups with similar values for the dependent variable. Different algorithms and packages, such as "rpart" and "partykit," can be used to construct trees. Visualizations, such as stacked bar charts, help interpret the results of the classification trees.

Overall, the summary provides an overview of describing market segments, testing and predicting segment differences in descriptor variables using statistical tests and regression

models, and the use of classification and regression trees for predicting categorical or binary variables.

Step 8: Selecting the Target Segment(s)

Selecting the target segment based on a decision matrix involves using a predefined matrix or set of criteria to assess and rank different segments or subsets of data. The decision matrix helps in making informed decisions by considering multiple factors and their relative importance.

1. Define the decision matrix: Create a decision matrix that outlines the criteria or factors to consider when evaluating and selecting the target segment. Each criterion should have a weight assigned to it, indicating its relative importance in the decision-making process. For example, criteria could include profitability, market size, customer satisfaction, or any other relevant factors specific to the context.

2. Assess the segments: Evaluate each segment or subset of data based on the criteria defined in the decision matrix. This assessment involves assigning scores or values to each criterion for every segment. The scores could be numerical ratings, qualitative assessments, or any other appropriate evaluation method. This step requires gathering the necessary data and information for each segment.

3. Calculate weighted scores: Multiply the scores of each criterion by their corresponding weights from the decision matrix. This step involves applying the weights to reflect the relative importance of each criterion. Summing up the weighted scores for each segment provides an overall evaluation metric that incorporates the multiple criteria.

4. Compare and rank the segments: Compare the calculated weighted scores of the different segments. The segment with the highest total weighted score indicates the most favorable choice based on the defined criteria and their weights. This ranking allows for the identification of the target segment that aligns best with the desired objectives or outcomes.

5. Validate and refine the selection: Review the selected target segment in light of the decision matrix and the rankings obtained. Ensure that the selected segment meets the intended criteria and aligns with the desired objectives. If necessary, iterate and refine the decision matrix or criteria to better capture the desired target segment.

6. Proceed with analysis or action: Once the target segment is selected, further analysis, decision-making, or action can be taken based on the identified segment. This may involve developing tailored strategies, designing marketing campaigns, conducting specific analyses, or any other actions related to the selected segment.

The selection process based on a decision matrix provides a systematic and structured approach to choose the target segment by considering multiple criteria and their relative importance. It helps in making more informed decisions and selecting the segment that offers the best fit or potential based on the defined evaluation factors.

Step 9: Customising the Marketing Mix

Customizing the marketing mix involves tailoring the various elements of the marketing mix (product, price and place) to suit the specific needs, preferences, and characteristics of a target market or segment. It involves making strategic decisions and adjustments in each element of the marketing mix to effectively reach and engage the intended audience.

1. Product customization: Customizing the product or service involves adapting its features, design, packaging, or functionality to meet the unique needs and preferences of the target market. This may include offering different product variations, bundling options, or personalized solutions. The goal is to create a product that resonates with the target audience and provides them with value and satisfaction.

2.Price customization: Pricing customization involves setting prices that are tailored to the specific market segment. This can include offering different pricing tiers, discounts, or promotions based on customer segments, purchase volumes, or specific market conditions. Customized pricing strategies aim to maximize revenue, capture value, and align with the target market's perceived value and price sensitivity.

3.Place customization: Place customization refers to selecting and adapting the distribution channels and locations that best reach the target market. This may involve choosing specific retail outlets, online platforms, or distribution partners that cater to the target segment's preferences and buying habits. Customizing the place element ensures that the product or service is readily accessible and available to the intended customers.

Customizing the marketing mix is essential for businesses to effectively position their offerings, differentiate themselves from competitors, and meet the unique requirements of their target market. It enables companies to better understand and connect with their customers, ultimately leading to improved customer satisfaction, loyalty, and business success.

Step 10: Evaluation and Monitoring

Evaluation and monitoring are critical processes in marketing that involve assessing the effectiveness, performance, and impact of marketing strategies and activities. These processes help businesses track progress, identify areas of improvement, and make informed decisions to optimize marketing efforts. Here's a description of evaluation and monitoring in marketing:

1. Establishing objectives and metrics: Evaluation and monitoring begin with clearly defining marketing objectives and establishing key performance indicators (KPIs) or metrics to measure progress and success. Objectives can vary and may include increasing sales, brand awareness, customer engagement, or market share. KPIs should be specific, measurable, attainable, relevant, and time-bound (SMART) to effectively evaluate marketing efforts.

2. Data collection and analysis: Evaluation and monitoring involve collecting relevant data related to marketing activities and performance. This can include sales data, website analytics, social media metrics, customer feedback, market research data, or any other relevant sources. Data is then analysed to assess the effectiveness of marketing strategies, campaigns, and tactics. This analysis provides insights into what is working well and areas that require improvement.

3. Comparing results against objectives: The collected data and analysis are compared against the established marketing objectives and KPIs. This comparison helps determine whether the marketing efforts are meeting the set goals or falling short. By evaluating the gaps between actual results and desired outcomes, businesses can identify areas for improvement or necessary adjustments to marketing strategies and activities.

4. Identifying strengths and weaknesses: Evaluation and monitoring enable businesses to identify their strengths and weaknesses in marketing. Strengths are areas where the marketing efforts are performing well and delivering positive results. Weaknesses highlight areas where improvements are needed or where marketing strategies may not be as effective. This identification helps businesses capitalize on their strengths and address weaknesses for better marketing performance.

5. Making data-driven decisions: The insights gathered from evaluation and monitoring serve as the foundation for data-driven decision-making. Businesses can use this information to make informed decisions about marketing strategies, budget allocation, resource allocation, campaign optimization, or targeting specific market segments. Data-driven decisions help businesses maximize the return on investment (ROI) and optimize marketing efforts for better results.

6. Continuous improvement: Evaluation and monitoring are iterative processes that require continuous review and improvement. By regularly monitoring marketing performance and evaluating results, businesses can identify trends, adapt to market changes, and continuously

improve their marketing strategies. This iterative approach ensures that marketing efforts remain effective, relevant, and aligned with business goals.

7. Feedback and customer insights: Evaluation and monitoring also involve gathering feedback and insights from customers, stakeholders, and market research. Customer feedback helps assess satisfaction levels, identify preferences, and uncover areas of improvement. Incorporating customer insights into the evaluation process provides a holistic view of marketing performance and aids in making customer-centric decisions.

In summary, evaluation, and monitoring in marketing involve setting objectives, collecting and analysing data, comparing results against objectives, identifying strengths and weaknesses, making data-driven decisions, and continuously improving marketing strategies. These processes enable businesses to assess performance, optimize marketing efforts, and achieve better outcomes in reaching and engaging their target audience.