

# **Market Segmentation Analysis**

Name — Lipun Kumar Rout

## Market Segmentation

**Market segmentation** is the practice of dividing your target market into approachable groups. Market segments are part of a larger market, often lumping individuals together based on one or more similar characteristics.

So what is the purpose of **marketing**? Basically to match the genuine needs and desire of the consumers with the offers, offered by the suppliers to satisfy the desires. The marketing plan basically consist of two components, they are **strategic marketing plan** and **tactical marketing plan**. The strategic plan configures long term direction of an organisation but the tactical marketing plan translate the long term strategic plan into detailed instructions for short term marketing actions. The strategic plan tells the organisation where to go and why and the tactical plan contains the instruction on what needs to be done to reach there. An analysis that conveys explicitly about the firm regarding their strengths, weaknesses, opportunities and threat, collectively we call it the **SWOT Analysis**.

Two key decision have to be made as a part of the strategic planning, which group of consumers to focus on, and which image of the firm to create in the market and yes these decisions are equally important and critical. Since the tactical marketing plans depends entirely on the strategic plan and in reverse to that the strategic marketing plan doesn't depend on the tactical plan, so the combination of good strategic marketing and good tactical marketing leads to the best possible outcomes. Bad strategic plan combined to a bad tactical plan leads to failure, fastest way of failing is to have an excellent tactical marketing based on bad strategic marketing and a good strategic marketing with a bad tactical marketing ensures survival.

Considering all things we can conclude that, the importance of strategic and tactical marketing for organisational success is not symmetric. Good tactical marketing can never compensate for bad strategic marketing. Strategic marketing is the foundation of organisational success.

Now let's talk about **market segmentation**, it's a decision making tool for the marketing manager for selecting a target market for a given product and proposing an appropriate commercial logistics. This is one of the key building block and ensures for marketing success. Market segmentation is the core need of a successful marketing. One of the approach to reach the segment such as **concentrated market strategy** and is attractive for organisation who are resource-poor but are facing aggressive competition in the market. To focus entirely on satisfying needs of on segment can secure the future that organisation but at the cost of higher risk, depending on one single market segment entirely.

Another way of approach is to go after a differentiated market strategy, this marketing strategy is suitable in mature markets where consumers are capable of differentiating between alternative products, and when an firm decide not to use market segmentation, it is effectively choosing to pursue an undifferentiated market strategy, where the same product is marketed using the same marketing mix to the entire market, examples of undifferentiated marketing are petrol and bread or milk as they are not particularly targeted to any specific group of consumers.

The **benefits** of **market segmentation** are it increases clarity, improves the brand loyalty and customers engagement, develops consumer in sights, optimizes for cost efficiency and resources management, grows niche marketing capabilities, stay focused on goal, higher customer satisfaction. If this is achieved successfully, it can also improve communication and information sharing across organisational units. Market segmentation is important and benefits of market segmentation are unavoidable. However, at the same time you need the right resources and expertise to acquire all

the advantages of market segmentation. Make sure to have a look at the market segmentation benefits and limitations to get to know more about the things in this regard.

**Market segment analysis** is the process of grouping consumers into naturally existing or artificially created segments of consumers who share similar product preferences or characteristics. So as the name suggest, analysing of the statistical data associated to it. In the process of analysing, Data analyst decides the extraction of market segment from the consumer data that affects the final segmentation solution.

The layers of the market segmentation analysis involves, conducting high quality market segmentation analysis, which involves extracting market segments, then enabling the high quality market segment which again involves collection of good data, exploring it then profiling it and then describing the segments. Lastly, making it happen in practice which involves deciding to segment, defining the ideal segment, selecting the target segments, developing a customised marketing fix, assessing effectiveness and monitoring the marketing changes.

Approach to market segment analysis is methodize in two ways of It is based on the premise that organisations are not in the position to choose any of the available approaches to market segmentation analysis due to organisational constraints. The second systematics is based on the nature of the segmentation variable or variables used in the market segmentation analysis.

When conducting **data driven market segmentation**, data analyst assumes that the whole segment naturally exist in the data but in the real consumer data, naturally existing, distinct and well separated market segments rarely exists.

So a ten step approach is recommended to market segment analysis. The basic structure is same for both the common sense and data driven market segmentation and after completion of the market segmentation analysis, the success of implementing a market segmentation strategy needs to be evaluated, and segments need to be continuously monitored for possible changes in size or in characteristics. Such changes may require modifications to the market segmentation strategy.

# Step 1: Deciding (not) to Segment

## Implications of Committing to Market Segmentation:

In spite of the fact that market segmentation has developed as a key marketing strategy applied in many organisations but it is not always the best decision carry out such a strategy. Before getting into the market segmentation analysis, it is important to understand the implications of pursuing a market segmentation strategy.

Organisations need to commit to the segmentation strategy on the long term, this is the key implication mentioned, because in another words market segmentation is a marriage, it's not a date, so the commitment here is very important as it goes hand in hand with the willingness and ability of the organisation to make considerable changes and investments.

Segmenting a whole bunch of market is not free, it requires many things and it cost many things as well, for example performing researches, fielding surveys, focus groups, designing packages and advertisements and communications messages. Well it is advised not to segment you see a increase in sales.

Croft (1994) recommends that – to maximise the benefits of market segmentation – organisations need to organise around market segments, rather than organising around products. Investigation must be done at a higher executive level and reinforced at all levels across all organisational units.

**Implication barriers** is a major aspect to be focused on, it refers to lack of leadership, pro-active championing, commitment and involvement in the market segmentation. They say that unless the chief executive sees the need for segmentation review, understand the process and shows interest in it, it is virtually impossible for a senior marketing executive to implement the conclusion in a meaningful way. So this was about the first group of barriers.

The second group of barriers tells about the lack of culture, lack of market or lack of change and lack of creative thinking and bad communication sharing across the unit and sticking to old ideologies and lack of training, these are some of the important factors that's prevent the growth of an organisation.

Some other stumbling blocks mentioned is lack of financial resources, means a company with limited resources only picks the best opportunities to pursue. Lack of planning, lack of structured process to guide the team through all the steps of segmentation process, these are some of the process related barriers. Most of these barriers can be identified from the outset of a market segmentation study, and then proactively removed.

# **Step 2: Specifying the Ideal Target Segment**

## **Segment Evaluation Criteria :**

This part emphasises on the user input, for a market segmentation analysis to produce useful results, user input cannot be limited to either a briefing at the start of the process, or the development of a marketing mix at the end. User needs to get involved and curl around the technical aspects of market segmentation analysis.

The organisation must determine two sets of evaluation criteria. One can be referred to as the knock-out criteria which are crucial, non-negotiable features of segments that the organisation would consider targeting. The second refers to as attractiveness criteria and are used to evaluate the relative attractiveness of the remaining market segments in abundance with the knock-out criteria.

On the other hand literature does not generally distinguish between these two kinds of criteria. Instead it proposes a wide array of possible segment **evaluation criteria**. They are as follows-

- The criteria mentioned are, Measurable, Substantial, Accessible, Sufficiently different, at suitable life-cycle stage.
- Then, if the segment is large enough or profitable. Whether it is likely to technical changes or not, sensitivity to price or not. Socio-political considerations, Cyclicity and seasonality, Life-cycle position.
- Whether the segment is distinguishable and compatible with company or not. Whether it is identifiable and accessible enough and if it is responsive and stable, and is it Heterogeneous between and Homogeneous within.
- Criteria depends on size growth rate per year, sensitivity to price and y, bargaining power of upstream suppliers. Depends on Financial and economic factors and Socio-political factors.
- It should be large enough having sufficient purchasing power and should be reachable and should be able to serve the segment effectively.
- In modern days as well maximum criteria are still the same like it should be large enough, growing and competitively advantageous. Should be measureable Develops maximum differential in competitive strategy and Preserves competitive advantage.
- Evaluated in terms of long term profit opportunities, financial resources, Managerial skills, Employee expertise, Facilities to compete effectively, Conflicts with stakeholders, Technological advances.

**Knock-out criteria** are used to determine if market segments resulting from the market segmentation analysis qualify to be assessed using segment attractiveness criteria. Homogeneous means, members of the segment must be similar to one another, member of the segment should be distinct from other segments and should have the ability of satisfying segment members and there must be a way to get in touch with members of the segment.

**Segment attractiveness** is evaluated based on the criteria of market size and growth potential. Profitability and potential returns. Competitive intensity and rivalry. Attractiveness criteria are not binary in nature. Segments are not assessed as either complying or not complying with attractiveness criteria.

**Implementing a structured process** while assessing market segments is beneficial. The most popular structured approach for evaluating market segments is by comparing the segment attractiveness and organisational competitiveness through plots. Factors which constitute both segment attractiveness and organisational competitiveness need to be negotiated and agreed upon.

This task should be completed by a team of at least 2-3 people who take the responsibility of market segmentation analysis. This team could propose an initial solution and report their choices to the advisory committee which consists of representatives of all organisational units.

Now again segment attractiveness vs organisational competitiveness, well it can't be completed here itself due to lack of necessary information to assess but there is a huge benefit in selecting the attractiveness criteria for market segments at this early stage in the process. It also makes the task of selecting a target segment much easier because the groundwork is laid before the actual segments are on the table. The market segmentation team should have a list of approximately six segment attractiveness criteria. Each of these criteria should have a weight attached to it to indicate how important it is to the organisation compared to the other criteria.

## Step 3: Collecting Data

### Segmentation Variables

The term segmentation variable refers to the variable in the empirical data used in commonsense segmentation to split the sample into market segments. Let's understand this by considering a table-

Sociodemographics		Travel behaviour	Benefits sought				
gender	age	N° of vacations	relaxation	action	culture	explore	meet people
Female	34	2	1	0	1	0	1
Female	55	3	1	0	1	0	1
Female	68	1	0	1	1	0	0
Female	34	1	0	0	1	0	0
Female	22	0	1	0	1	1	1
Female	31	3	1	0	1	1	1
Male	87	2	1	0	1	0	1
Male	55	4	0	1	0	1	1
Male	43	0	0	1	0	1	0
Male	23	0	0	1	1	0	1
Male	19	3	0	1	1	0	1
Male	64	4	0	0	0	0	0
segmentation variable		descriptor variables					

Here the segment variable is one single characteristic of the consumer in the sample, each row represents one consumer and each variable represent one characteristic. An entry of 1 in the data set indicates that the consumer has that characteristic. An entry of 0 indicates that the consumer does not have that characteristic. The above table uses Gender as the segmentation variable. All the other personal characteristics available in the data – in this case age, the number of vacations taken, and information about five benefits people seek or do not seek when they go on vacation serve as so-called descriptor variables.

The data driven market segmentation is different as they are based on multiple segmentations variable as compared to the commonsense segmentation. In the data-driven case they rely on multiple aspects apart from relying on a single variable, they look at other sets of attributes of characteristics. The variables, gender, age, and the number of vacations undertaken per annum serve as descriptor variables. Empirical data for segmentation studies can come from a range of sources: from survey studies; from observations such as scanner data where purchases are recorded and, frequently, are linked to an individual customer's long-term purchase history via loyalty programs; or from experimental studies.

The term **Segmentation Criteria** used here in a broader sense than the term segmentation variable. Segmentation variable refers to one measured value but the term segmentation criteria relates to the nature of the information used for market segmentation. The most common segmentation criteria are geographic, socio-demographic, psychographic and behavioural. So whichever segmentation is suitable that should be approached, if demographic segmentation will work for your product or service, then use demographic segmentation, if geographic segmentation will work because your product will only appeal to people in a certain region, then use it. Just because psychographic segmentation is sexier and more sophisticated than demographic or geographic segmentation does not make it better.

**Geographic segmentation** is considered as the original segmentation criteria used for market segmentation. For example a tourism organisation wants to attract tourists from its neighbouring countries, so it will use the whole segment of languages spoken over there. Language differences across countries represent a very pragmatic reason for treating tourists from different neighbouring countries as different segments. When geographic segmentation is used – the consumer's location of residence serves as the only criterion to form market segment.

Another example we can consider of company called Amazon selling it's Kindle online, a common web page is used to describe the base product and then customers are asked to indicate their country of residence and country specific additional information is provided.

The key advantage here is it is easy to target communication messages, and select communication channels to reach the selected geographic segments. The key disadvantage is that living in the same country or area does not necessarily mean that people share other characteristics relevant to marketers.

**Socio-Demographic Segmentation** criteria include age, gender, income and education. This segment is useful in some industries like luxury goods, cosmetics, baby products, retirement villages, retirement villages.

**Psychographic Segmentation**, in this type of segmentation people are grouped here according to their psychology such as their belief, interests, preferences, aspirations, or benefits sought when purchasing a product.

Apart from Geographic and Socio-Demographic criteria, Psychographic criteria is little complex as it is difficult to find a single characteristic of a person that will provide insight into the psychographic dimension of interest.

Let's understand its advantage from an example, tourists whose primary motivation to go on vacation is to learn about other cultures, have a high likelihood of undertaking a cultural holiday at a destination that has ample cultural treasures for them to explore. Therefore it is more reflective of the underlying reasons for differences in consumer behaviour.

**Behavioural Segmentation**, this approach is to search directly for similarities in behaviour or reported behaviour such as prior experience with the product, frequency of purchase, amount spent on purchasing the product on each occasion.

### Data from Survey Studies

**Choice of Variables**, in the data driven segmentation variables that are relevant to the construct must be included and unnecessary variables must be excluded. Including unnecessary variables also increases the dimensionality of the segmentation problem without adding relevant information.

**Response Options**, allowing respondents to answer in only in ways like generate binary or dichotomous data. Such responses represented by 0s and 1s and distance between 0 and 1 is clearly defined.

**Response Styles** affects the segmentaion, response styles affect segmentation results because commonly used segment extraction algorithms cannot differentiate between a data entry reflecting the respondent's belief from a data entry reflecting both a respondent's belief and a response style.

**Sample Size** are important for statistical analysis. It must be sufficient, if sample is insufficient then the segmentation algorithm will face problems. If the sample size is sufficient, however it is very easy to determine the number and nature of segments in the data set.

It is recommended by an author that the sample size should be  $2^p$  where  $p$  is the number of segmentation variables and other experts recommend other methods to study the performance of cluster algorithm. In simple case it must be at least ten times the number of segmentation variables times the number of segments in the data. Increasing sample size generally improve the accuracy of extracted segments, with most significant improvements seen in very small samples.

Organisations have access to data of consumer which they provide knowingly or unknowingly, examples scanners used across the businesses, booking data used in transportations and hotels and in many more ways. Advantage is that such data are usually automatically generated and – if organisations are capable of storing data in a format that makes them easy to access – no extra effort is required to collect data.

Another possible source of data that can form the basis of market segmentation analysis is **experimental data**. These data can be generated from studies and surveys or some kind of laboratory experiments, like to analyse to a particular commercial how a bunch of consumers reacts or what choices they make while choosing something. This information can also be used as a segmentation criteria.



# Step 4: Exploring Data

After collecting data, an analysis approach is carried out to identify general patterns in the data. First off all the data is cleansed and then it is pre-processed if required, this exploration offers algorithms for extracting meaningful market segments.

Exploration of data helps-

1. Identify the measurement levels of the variables.
2. Look into the univariate distributions of each of the variables.
3. Evaluate dependency structures between variables.

Pre-processed data can be used as input for segment algorithms, so that it can provide insights of various segmentation methods for extracting market segment.

Understanding data explorations and its different aspects. A data set, for example travel motives, a data set which contains the travel motives of residents, such kind of data which would be in a comma separated values format.

Now first of all we have to read the csv file, if in python we have to import certain libraries for execution.

In python - > `data = pd.read_csv("vacation.csv")`

In R - > `R> vac <- read.csv("vacation.csv", check.names = FALSE)`

After that we can see the top observations, learn about the column names and size of the data and we can check for the null values across the data set, how many respondents didn't provide their details, and then various things would be done to carry out the exploration of data.

**Data Cleaning** often regarded as a preparatory step and is the first and foremost step of data analysis, it's the process of finding and fixing errors and inconsistencies in data to improve its quality. It includes checking of implausible values are contained in the data. Categorical variables, if they contain permissible values or not. In addition to that, incorrectly formatted data can be checked then fixing duplicates or incomplete data in the dataset.

Now, regarding the travel motives dataset, no data cleaning is required for Gender and Age variable and Income 2 is not sorted in order because `read.csv()` convert columns containing information other than numbers into factors. Factors are the default format for storing categorical variables in R. Cleaning data using code, requires time and discipline, but makes all steps fully documented and reproducible.

Overwriting the unordered data, to check the transformation is to cross-tabulate the original column with the new, re-ordered version. `" R> table(orig = vac$Income2, new = inc2) "`

**Descriptive Analysis**, this refers to the graphic representation of the data that provides insights into the dataset. In R, for getting the summary of numeric data, the `"summay()"` is used. Various graphical methods to visualize the numeric data such as histograms, boxplots and scatter plots, bar plots of frequency counts are useful for the visualisation of categorical variables.

Histograms reveal if the distribution of a variable is unimodal and symmetric or skewed. For that, categories of values should be created first, this process is called binning. Once we have created the

bins, we plot how many of the observations fall into each bin using one bar for each bin. We plot the bin range on the x-axis, and the frequency of observations in each bin on the y-axis. To carry out this we use the package lattice because it enables us to create histograms by segments.

```
R> library("lattice")
```

```
R> histogram(~ Age, data = vac)
```

We can make bins more finer by using the argument 'breaks', as finer bins are more informative. Argument "type" is set to density to rescale the y axis to display density estimates. To avoid selecting the width of the bins, boxplots are used, boxplot is the most common graphical visualisation of unimodal distributions in statistics. It compresses a data set to minimum, first quartile, median, third quartile and maximum.

## Pre-Processing

**Categorical Variables**, procedures used for categorical variables – first one is merging levels of variables and second one is converting categorical variables to numeric ones.

Merging levels of variables (categorical) is useful if there are too many original categories, we can consider the income variable here. 68 people had an income higher than \$150,000. Top 3 categories contains 10-15 people each, which indicates out of 1000 peoples it covers only 1.5%. Merging all the level with the next variable (Income2), will result to a more balanced frequency.

Transforming categorical data into numeric data, if the assumption of distance between adjacent scale points on the ordinal scale are approximately equal. Consider these verbal labelling- "STRONGLY DISAGREE, DISAGREE, NEITHER AGREE NOR DISAGREE, AGREE, STRONGLY AGREE ", the distance between these answers are almost same and therefore such data can be treated as numerical.

**Numeric Variables** have an influence on segment extraction method. Suppose one of the segment variable is binary means values varies in 0 and 1, both indicate a case of condition. Second variable indicates the expenditure in dollars per person per day. The difference between both ie., spending per dollar per person per day have same weight as the difference between liking to dine out or not. This happens because the variable are standardized to establish a common scale.

**Principal Components Analysis**, when a multivariate dataset containing metric variables is transformed to a new data set with variable, this refers to PC. Principal components analysis basically keeps the data space unchanged, but looks at it from a different angle.

PCA helps in discarding the correlation matrix of several numeric variables, If the data ranges are different, the correlation matrix should be used. The transformation obtained from principal components analysis is used to project high-dimensional data into lower dimensions for plotting purposes.

## Step 8: Selecting the Target Segment(s)

**The Targeting Decision:** In Step 8 of market segmentation, the focus shifts to selecting one or more target segments from those identified in earlier steps. This decision is crucial as it significantly impacts the future performance of the organization. The process involves evaluating the attractiveness of each segment based on predefined criteria and assessing the organization's competitiveness in serving those segments. This step builds on the outcomes of Steps 2, 6, and 7, where knock-out criteria and segment attractiveness were established. The first task is to ensure that all remaining segments meet the knock-out criteria. Then, the team evaluates which segments the organization would most like to target and which segments are most likely to choose the organization's offerings. Answering these questions helps in making the final decision on which segment(s) to target.

**Market Segment Evaluation:** Most books on target market selection recommend using a decision matrix to visualize relative segment attractiveness and organizational competitiveness for each market segment. Various names are used for these matrices, including Boston matrix, General Electric/McKinsey matrix, directional policy matrix, and market attractiveness business strength matrix. The purpose of these matrices is to simplify the evaluation of alternative market segments and aid in selecting one or a few for targeting.

The decision matrix assesses two dimensions for each segment: segment attractiveness and relative organizational competitiveness. Segment attractiveness reflects how desirable the segment is for the organization, while organizational competitiveness indicates how likely the organization is to succeed in targeting that segment. These factors are evaluated based on predefined criteria and weights determined in earlier steps of the market segmentation analysis.

To create a segment evaluation plot, the team assigns a value to each segment for each attractiveness criterion. This value is calculated by multiplying the weight of the criterion by the segment's rating for that criterion. The sum of these weighted values represents the segment's overall attractiveness. A similar process is followed for organizational competitiveness.

The plot includes circles representing each segment, with the x-axis indicating segment attractiveness and the y-axis indicating organizational competitiveness. The size of the circles can represent another criterion, such as profit potential. The plot helps visualize which segments are most attractive and competitive for the organization, aiding in the decisionmaking process for target segment selection.

## Step 9: Customising the Marketing Mix

### **Implications for Marketing Mix Decisions:**

Marketing was originally viewed as a toolbox for selling products, with various components like product planning, packaging, distribution channels, pricing, and promotions. Over time, the marketing mix has been commonly understood as the 4Ps: Product, Price, Promotion, and Place.

Market segmentation is integral to strategic marketing and is closely tied to positioning and competition. The segmentation-targeting-positioning (STP) approach starts with segmenting the

market, then targeting specific segments, and finally positioning the product to meet segment needs. This sequential process ensures segmentation is aligned with broader strategic decisions.

The target segment decision impacts the development of the marketing mix. Once target segments are chosen, organizations may need to design new products, adjust pricing, select appropriate distribution channels, and develop effective promotion strategies. Customizing the marketing mix to the target segment maximizes the benefits of a market segmentation strategy. Market segmentation analysis can be tailored to specific marketing mix elements like pricing, advertising, or distribution, depending on the organization's needs. Insights from the target segment's detailed description guide the adjustment of the marketing mix to best serve the chosen segment.

**Product:** When developing the product dimension of the marketing mix, organizations need to tailor their products to customer needs. This often involves modifying existing products rather than creating new ones. Key decisions include naming the product, packaging, offering warranties, and providing after-sales support.

**Promotion:** • When designing the promotion component of the marketing mix, typical decisions include developing an advertising message that resonates with the target market and identifying effective communication channels. Other promotional tools include public relations, personal selling, and sponsorship.