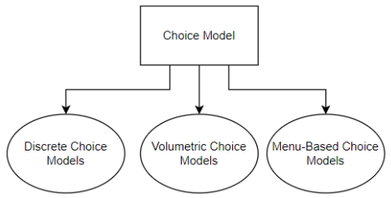
Choice Models

With the increasing competition among the various products in the current economic era, it is important to understand the likelihood of customers' choice by researching the impact the marketing strategies have made in the minds of the customers. Hence, formulating a choice model helps the companies to understand the parameters that influence the choices the customers make towards the product. This helps the companies to

- Design a new product or service in such a way to as to attain maximum profit.
- Redesign or reconfigure an existing product to suit the customer's choice.
- Adjust the parameters such as price, discount, frequency of availability.
- Understand what drives the customers towards a product.
- Analyze the interest of the consumers in a particular product or service over a region or a geographical area.
- Come up with better advertisement strategies.



Steps followed while creating a choice model:

1. Identify the focus groups among the customers. This means that the customers' choices can be surveyed in person to understand the customer choices better. From this hypothesis can be developed to understand the customer needs better.
2. Consider two scenarios where the first one has observations helpful to enhance the existing products and the another focusing on the new product or service. This can be done by imagining hypothetical experiments of marketplaces where the product is likely to be sold where the customers are given the option to choose from a set of products. The iterations can be repeated again and again by changing the price points or discount or the quantity or quality of the product.
3. Finally, using the data collected from the above steps, a computer model can be simulated for the product's market. The prime market segments of the product can be identified and the future trends of the product can be forecasted to a certain extent. Further, the significance of the advertising and the promotional activities can also be determined.

Conjoint Models

Conjoint analysis is the method by which the companies can understand how its customers values each attribute or component of its product or service. While analyzing a product using conjoint analysis, the main product or service is broken down into its individual components or features thereby giving an insight of how they are received by the customers. This type of analysis helps to understand the various layers of the decisions the customers make while choosing a product or a service. This type of analysis is conducted during the launch of the product.

For example, consider that a person wants to buy a house. The main decision for finalizing the house will result from analyzing the various parameters such as the Area, Number of floors, geographical location, front elevation, number of rooms etc. Hence the main decision of buying the house if influenced by the impact of the above smaller decisions. Mathematically, this can be represented as,

$$R(P) = \sum_{j=1}^{k_j} \sum_{i=1}^{m} \beta_{ij} x_{ij}$$

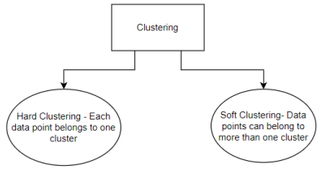
Where P is the product bundle and R(P) is the function associated with the impact of the product bundle at various levels (say i and j).

Types of conjoint analysis:

1. Choice Based Conjoint Analysis – The widely used conjoint analysis method to determine the significance of the underlying features in overall decision making of the product.
2. Adaptive Conjoint Analysis – In this type of conjoint analysis, the survey results are aligned in such a way that the insights are drawn from the customer's responses for each attribute based on their historical values.
3. Full-Profile Conjoint Analysis – In this type of analysis the customer is provided with a set of attributes that contains the entire features of the product or service. The customers are then asked to pick the features which favor their liking.
4. MaxDiff Conjoint Analysis – In this type of analysis the customers are provided with the set of attributes and are advised to organize them in their preferred order. From this the companies can arrive at the conclusion regarding the features the customers are most likely to buy.

Cluster Analysis

Cluster Analysis is a method by which the entire dataset under consideration is grouped or broken down into smaller sub groups based on how closely similar to each other they are. This helps the companies to identify the different classifications of the customer groups based on their liking for the features of the product. It is also called as segmentation analysis as the data is grouped into various segments. It is an exploratory analysis method. Clustering can be done with both qualitative and quantitative data.



K-Means Clustering

It is a form of hard clustering method where each cluster each data point belongs only to one cluster. The distance between the two datapoint or customers can be calculated using the Euclidean Distance. This means that as the distance between the clusters increase, the degree of similarity increases. If we have two customers say i and j, then the distance between them in is given by

$$d_{ij} = \sqrt{\sum_{k=1}^{p} (x_{ik} - x_{jk})^2}$$

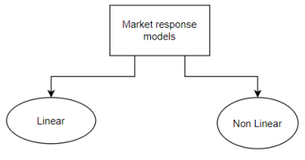
Further the types of clustering are,

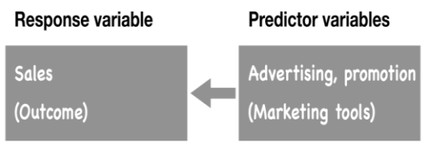
1. Hierarchical Clustering – Each data point is considered as its own cluster and two or more such clusters are combined together to form a single cluster. This process is repeated until distinct number of clusters are obtained.
2. Probabilistic Clustering - computerized approach where the clusters are formed by connecting the items using densities.
3. Exclusive Clustering – each datapoint can be present only in one cluster.
4. Overlapping Clustering – The datapoints can be present in more than one cluster.
5. Fuzzy Clustering – The datapoints are assigned clusters based on probability
6. Ward's Method – Tiny, same sized clusters are created using the variance.

Market Response Models

In the current market trend, formulating a simple marketing strategy with just one or two parameters under consideration is not enough. The impact of the various direct and indirect marketing strategies should also be taken into consideration. Some of which are:

1. Word of mouth – It is important to consider that the customer is the most valuable brand ambassador of a product. Although, word of mouth is a very ancient form of marketing, it is proving its effectiveness even in the modern day. It is also the most inexpensive and widespread method of marketing. Also, door to door advertising is also proved to be effective in the success of a product.
2. Public Relations - With the social media become popular in the modern era, it is easier to reach customers on a larger scale with the help of PR. Bloggers, youtubers, social media content creators can be pulled in for barter collabs to reduce the financial disbursements and at the same time market the products.
3. Price promotion – Along with attractive discounts and sale, the product can be further effectively marketed using price promotions like lucky draws, give away or free goodies.
4. Advertising – Any product or service needs to have a very robust advertising plan to make it a success. Creative ad films, articles in newspapers, magazines and other media platforms should be sent out in calculated time intervals to make sure that the need and availability of the product or service reached the customers.





The response models are of two types – Linear and Non-Linear.

The Linear response model has only one predictor variable. This can be either advertising, promotion, PR or any other source of marketing. Hence, the response function is given as,

Sales = f(PRICE)

The sales and price of the product are assumed to have a linear relationship and the predictive analysis can be done using the intercept.

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