Original Article

Perceptual Mapping as a Marketing Research Tool for Brand Positioning

Iza Gigauri

Associate Professor of Caucasus University, Caucasus School of Business, Tbilisi, Georgia
Associate Professor of St. Andrew the First-Called Georgian University of the Patriarchate of Georgia, School of Business, Computing and Social Sciences, Tbilisi, Georgia

Abstract - In order to create a perceptual map, discriminant analysis is used to map selected brands or products with their attributes. The perceptual map shows graphically how consumers associate the attributes in different dimensions. Moreover, service quality has become important to differentiate the brand and hence, to achieve business success. The paper analyzes literature on perceptual mapping and discusses the different methods of creating perceptual maps. It overviews the various analysis methods for developing a perceptual map and examines mapping techniques. The paper also highlights the benefits of perceptual mapping in marketing research for managers.

Keywords - Perception, Perceptual Map, Branding, Positioning, Marketing, Market Research.

I. INTRODUCTION

Customer loyalty plays a key role in business success. Consequently, most businesses try to satisfy their customers and develop a long-term relationships with them. For this reason, Perceptual mapping is used as the graphical technique to display the perceptions of potential customers. According to Nigam &Kaushik (2011), perceptual mapping is a tool that enables market researchers to represent visually customers' perceptions of products, attributes, brands, promotions or services, and to react to changing conditions. Perceptual mapping assists a company in understanding and gains a sustainable edge over the competitors. It helps companies to preserve current customers and ensure their loyalty (Nigam &Kaushik, 2011). Thus, perceptual mapping is an analytical tool to understand customers.

In general, the perceptual mapping method illustrates how the marketplace associates benefits and demonstrates the relative positioning of brands across those benefits. The goal of perceptual Maps is to display both brands and their benefits from the standpoint of customers. Similar brands or benefits are grouped together. Consequently, the benefits determine how brands are positioned. Therefore, perceptual maps show which benefits are most closely grouping them together, which attributes can be unrelated, and which features are viewed as contradictory or opposites.

The benefit ratings for brands can be analyzed using the multi-dimensional scaling technique. The main advantage of Perceptual mapping is its ability to illustrate clearly how benefits are correlated. This insight allows targeted positioning of brands as well as focusing on key benefits. Likewise, the output of a perceptual map helps to understand which benefits are clustered together based on consumer perceptions. In addition, it identifies which benefits have a negative relationship with each other in the minds of customers.

Perceptual mapping can illustrate complex relations relatively simply. In this regard, it becomes easy for managers to judge a distance on a map. Thus, perceptual mapping techniques can be useful for displaying data based on a survey about consumer preferences.

According to Ayaz et al. (2012), customer perception is typically affected by advertising, reviews, public relations, social media, personal experiences, and other channels. Moreover, the position of a product, product line, brand, or company is typically displayed relative to their competitors. Perceptual maps are used in new product design, advertising, retail location, and many other marketing applications where a manager wants to know the basic cognitive dimensions of the product being evaluated and, more importantly, the relative positioning of the product relative to the ones present in the market (Ayaz et al., 2012).

Thus, it is a powerful marketing technique for market researchers and managers. However, not many studies are devoted to the comprehensive evaluation of the different aspects of this method. This exploratory and analytical research discusses the theoretical framework of perceptual mapping, analyzes the various mapping methods, examines techniques behind the map, and demonstrates the key benefits of using perceptual mapping.

II. PERCEPTUAL MAPPING AS A MARKETING TOOL FOR POSITIONING

Today, product positioning is significant because of its critical component in competitive marketing. In this context, understanding product positioning and its concepts are of outstanding importance for the survival of companies (Najafizadeh et al., 2012). A key element of a competitive marketing strategy is

product positioning. Product positioning is concerned with designing the image of the firm's offering, so that target customers understand and appreciate what the product stands for in relation to its competitors. Each brand within a set of competitive offerings is thought of as occupying a certain position in a customer's "perceptual space". So perceptual mapping generally refers to techniques used to graphically represent this space (Kohli&Leuthesser, 1993).

Product positioning is the activities undertaken by the marketer in order to communicate the features and the benefits of the product or the image of the brand to both the actual and potential customers (Johansson, 2006). As a result, it is a crucial component of competitive marketing strategy. Therefore, perceptual mapping techniques are frequently used to aid managers in making decisions about product positioning (Kohli&Leuthesser, 1993).

Perceptual mapping is also known as a positioning map as it helps to develop a market-positioning strategy for products and services. Perceptual mapping offers a unique ability to understand market structure, analyzing the complex relationships among marketplace competitors and the criteria used by buyers in making purchase decisions and recommendations (Nigam &Kaushik, 2011).

Most products and services have many physical and intangible attributes with varied consequences for a purchaser (Bagozzi et al., 1998). For instance, a product is not merely 'a product,' but rather for a consumer, it is a collection of objective and subjective characteristics, such as size, color, package, comfort, price, etc., and consequences like feelings of pride, power, prestige, and so on. Therefore, marketers' task is to decide how many attributes to build into the product, how much quality to include in each attribute, and how to put the attributes together to gain a competitive advantage (Bagozzi et al., 1998). However, only a few product attributes are important in any actual choice process. Indeed, two or three key attributes are often sufficient to predict consumer choices. It should be noted that key attributes vary by market segment, and hence the marketing effort must change accordingly (Bagozzi et al., 1998). Those key product attributes and consumer

perceptions or beliefs can be fruitfully represented in a perceptual map (Bagozzi et al., 1998)

The perceptual map that represents a set of important features according to customers' views and opinions has been introduced to determine positioning strategies in companies (Lovelock & Wright, 2001). According to Wilson and Gilligan (2005), a perceptual map can be applied by marketers to visually illustrate consumer perceptions and prioritize brands and their perceived attributes.

Moreover, perceptual mapping is applied along with factor analysis techniques to obtain customers' mental knowledge and to recognize competitors' weaknesses and strengths. This, in turn, results in inappropriate decision-making about the product positioning selection (Najafizadeh et al., 2012).

The positioning strategy includes three categories: Target customers, target competitors, and competitive advantages. In order to select a feature or a concept in positioning and to effectively position a product, marketing managers need to know what is important for their target markets. Consequently, necessary researches are required to find out who are the target market members and what their views are about the important aspects of products or competitors (Najafizadeh et al., 2012). Besides, differentiating aspects need to be selected and to decide about benefits or variables, which differentiate the firm or its products from competitors (Najafizadeh et al., 2012). In addition, market research should reveal perceptions of target customers about a company's product features on the one hand and competitors' product perceptions on the other hand. The statistical analysis is performed to demonstrate customers' preferences. This leads to the perceptual mapping technique that helps to decide about the positioning strategy (Najafizadeh et al., 2012).

The perceptual map is drawn based on consumers' views about the product features and graphically shows consumers' assumptions about various products or brands' position in comparison with competitors. If the perceptual map has more than two dimensions, multi-dimensional measurement scales are used. The features of a perceptual map described by Najafizadeh et al.(2012)are summarized in Fig. 1.
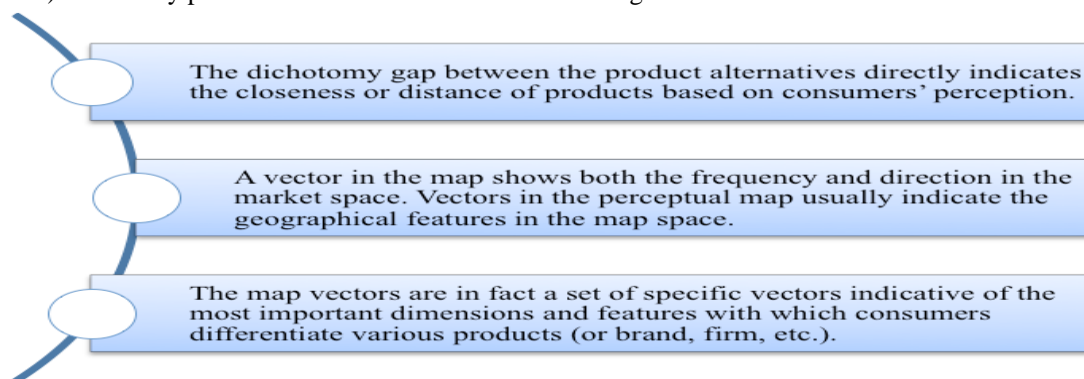

The dichotomy gap between the product alternatives directly indicates the closeness or distance of products based on consumers' perception.

A vector in the map shows both the frequency and direction in the market space. Vectors in the perceptual map usually indicate the geographical features in the map space.

The map vectors are in fact a set of specific vectors indicative of the most important dimensions and features with which consumers differentiate various products (or brand, firm, etc.).

Fig. 1 The features of a perceptual map

The two most common methodologies used to produce perceptual maps are multidimensional scaling and factor analysis (Bagozzi et al., 1998).

In order to examine the inner correlation among many variables and to classify them in a set of common factors, the factor analysis - multi-variety statistic method is undertaken. The factor analysis is grounded on the key concepts (Najafizadeh et al., 2012) that are summarized inFig. 2.

Communality
- It is degree of common variance between a variable and other variables used in the analysis.

Eigen value
- It indicates the specific variance degree that is clarified by each factor.

Factor loading
- It is the correlation between the main variables & factors. It's square root indicates what percent of a variable variance is explained by the considered factor.

Factor matrix
- It is a table showing the variables factor loading in each factor.

Factor rotation
- It is a process for factor axes adjustment which results in meaningful and plain factors.

Factor score
- The factor analysis summarizes main variables in limited number of factors.

Fig. 2 Concepts of Factor Analysis

When using the attribute-based approach for perceptual mapping, respondents are asked to rate the selected product or brand on several attributes. Then, Discriminant analysis is usually used with the help of SPSSsoftware. A perceptual map is drawn using the SPSS output of the discriminant analysis. For example, Fig. 3 shows the perceptual map of the selected soft drinks and different attributes.
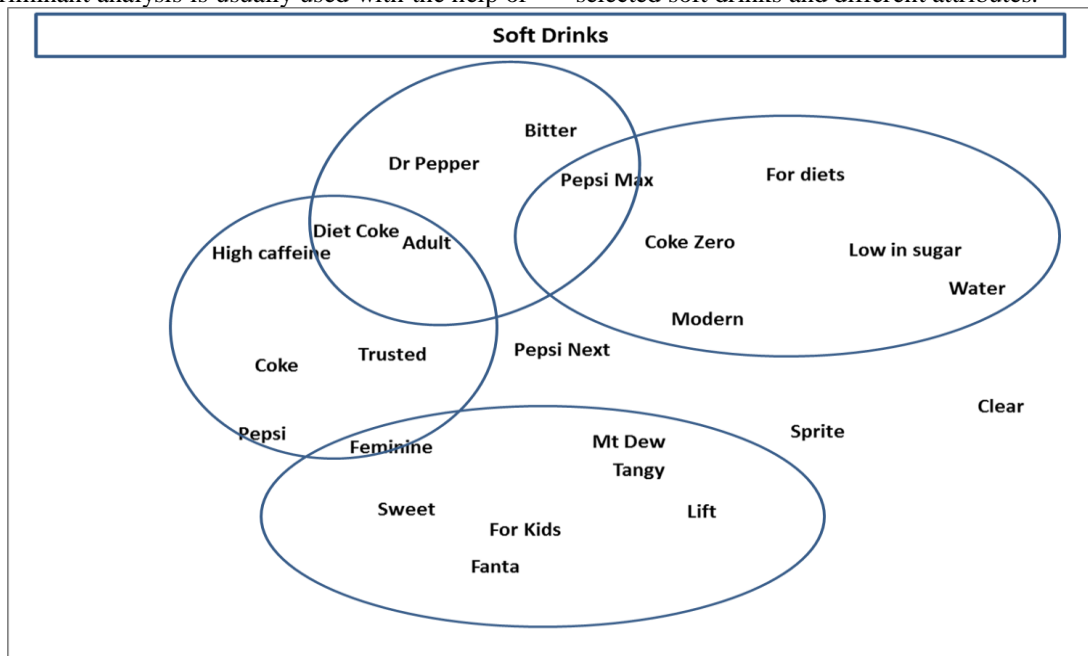

Fig. 3 Example of Perceptual Map for the Soft Drink Market
Source: http://www.perceptualmaps.com/free-templates/multidimensional-perceptual-maps/multi-attribute-perceptual-maps/

Thus, perceptual maps indicate the most important attributes in consumer decision-making. These attributes then can become the crucial points in product design and advertising. Moreover, perceptual maps illustrate a company's own brand and competing brands score in the minds of consumers. As a result, managers obtain information on the strength and weaknesses of both their own and

competitor's brands. In addition, perceptual maps suggest possible opportunities in the market (Bagozzi et al., 1998). Consequently, perceptual mapping is useful for product positioning as it can suggest the best competitive tactics to pursue in the market selection, product design (or redesign), and communication, pricing, and distribution decisions. The study of a product's position relative to that of its competitors on a perceptual map serves as a starting point for exploring competitive moves and their implications (Bagozzi et al., 1998).

As a marketing research tool for positioning, the perceptual mapping includes the analytic procedure for measuring and plotting consumers' reactions to important attributes and benefits of a set of competing products. Theoretically, a perceptual map is a multidimensional image of the perceived similarities and differences among products and brands (Bagozzi et al., 1998). The number of dimensions reflects the number of important customer attributes. Thus, Perceptual maps may be derived from data on consumer perceptions of similarities between brands using a statistical procedure called multidimensional scaling (Bagozzi et al., 1998).

In summary, the following characteristics are visually demonstrated by a perceptual map: most important attributes for consumers to make purchase decisions; product strengths and weaknesses relative to competing products; market opportunities based on consumers' perceptions of the existing market and their ideal points; market evolution; product reposition opportunities.

Thus, perceptual mapping is a tool that helps market researchers visually represent customers' perceptions of products, attributes, brands, promotions, or services. It facilitates a clear definition of the target segment and developing a unique positioning strategy.

III. THE ROLE OF PERCEPTUAL MAPS IN BRAND STRATEGY

Managers may use perceptual maps at a variety of levels, such as for brand, product, and corporate positioning. Perceptual maps of brands can be used to assess opportunities for new brands, as well as for repositioning existing brands. Product perceptual maps may be used to examine the competition between generic substitutes and can help identify new, unexpected ways in which customer needs may be met (Bagozzi et al., 1998).

In general, the brand concept is developed by the management in such a way that the customers memorize the message and form the brand image (Prasetya&Iskandar, 2014). Knowing the position of its brand in the market will help management to develop its points of difference to stand out as a top-of-mind brand (Prasetya&Iskandar, 2014).

Beyond deciding which market segments the company will target, deciding on a value proposition is essential to marketing. It will create a differentiated value for targeted segments and decide what position one company will occupy in those segments. Product positioning on customers' minds helps customers in their buying decision (Prasetya&Iskandar, 2014). In this respect, perceptual maps visually display current and potential customers' perceptions towards a brand and its competitors.

Marketers have always tried to achieve two seemingly contradictory goals: making their brands distinctive and making them central in their category (Dawar&Bagga, 2015). Central brands shape category dynamics, including consumer preferences, pricing, and the pace and direction of innovation. Distinctive brands stand out from the crowd and avoid direct competition with widely popular central brands (Dawar&Bagga, 2015). The right balance between centrality and distinctiveness is critical because a company's choices influence not only brand perception but also the company's profitability. Marketers have lacked the tools needed to get this balance right, as they have analyzed brand positioning and business performance separately. To solve this problem, Dawar and Bagga (2015) presented a new approach called the centrality - distinctiveness (C-D) map, which allows companies to directly connect a brand's position on a perceptual map with business outcomes such as sales and price. Using the tool, managers can determine the desired market position, make resource allocation and brand strategy decisions, track performance against competitors over time, and evaluate strategy on the basis of results(Dawar&Bagga, 2015).

In order to create a C-D map of a brand category, a company identifies the geographic market of interest and the customer segments to be surveyed because a brand's position on the map can vary dramatically depending on those variables (Dawar&Bagga, 2015). The company then conducts a survey to collect data on consumers' perceptions of the brand's centrality and distinctiveness (scored on a 0–10 scale). The map also captures market performance: The circle for each brand is sized proportionally to its unit sales volume, price, or another metric (Fig. 4).
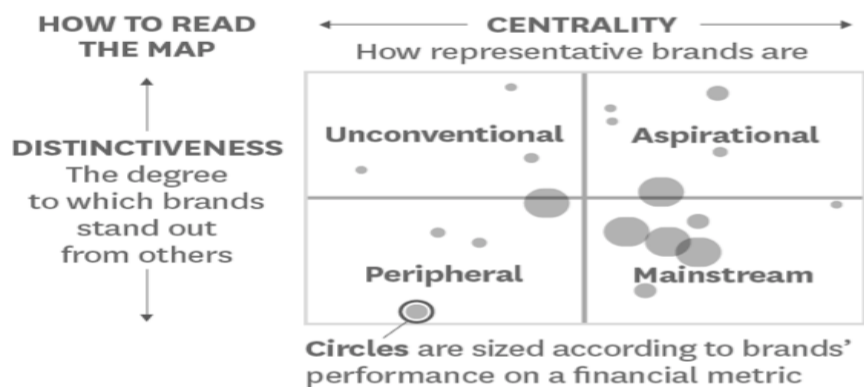
HOW TO READ THE MAP

CENTRALITY How representative brands are

DISTINCTIVENESS The degree to which brands stand out from others

Unconventional | Aspirational

Peripheral | Mainstream

Circles are sized according to brands' performance on a financial metric

Fig. 4 The Centrality-Distinctiveness Map

Source: Dawar, N. &Bagga, C. K. (2015). A Better Way to Map Brand Strategy. Harvard Business Review. https://hbr.org/2015/06/a-better-way-to-map-brand-strategy

By focusing on centrality and distinctiveness, companies can make comparisons across categories and geographies and decide which market offers the best opportunities for the brand.

Authors argue that because aspirational brands are both central and distinctive, companies can take advantage of high sales volumes and premium pricing. These trusted brands are well-positioned to launch innovations that redefine the category (Dawar&Bagga, 2015). At the same time, mainstream brands build their central position through careful engineering and product development to align with (or even shape) popular tastes and through intense advertising to make the brand synonymous with the category (Dawar&Bagga, 2015). However, peripheral brands offer benefits similar to those of more central brands, and consequently, consumers typically buy them as substitutes, usually because of lower prices or they have minimal engagement with the category. And the business models unconventional brands as niche players must be designed for profitability at low volumes. Efforts to become more central can include making the brand's unique features more mainstream or adding mainstream features. A reasonable strategy for them would be to migrate from the unconventional to the aspirational quadrant. This would increase sales volume without compromising distinctiveness (Dawar&Bagga, 2015).

Dawar and Bagga (2015) suggest five potential applications of C-D mapping: to assess a brand's positioning strategy, to track the competition, to manage the brand portfolio; to manage global brands; to track and analyze results. Which quadrant a brand occupies on the C-D map reflects the firm's strategy, capabilities, and the nature of the (Dawar&Bagga, 2015).

In summary, the presented C-D mapping provides a novel look at competitive brand positioning and reveals an important insight into brand strategy. However, consumers' perceptions can be partially shaped by marketing communication activities. It should also be taken into consideration that consumers cannot be familiar with all brands in a certain category. Therefore, perception of centrality and distinctiveness may reflect a company's influence on consumers' minds and its effort in creating brand awareness. Besides, consumers may perceive brands not only within the given category but also beyond; for instance, they can purchase water instead of coffee. Therefore, consumers may consider a brand's competitors under subjective conditions, which should be taken into account while undertaking perceptual mapping.

IV. PERCEPTUAL MAPPING MODEL

Perceptual mapping can be effectively used for market segmentation to identify the specific target audience or customers, as well as for decisions about advertisements, brand positioning, or product development (Bhattacharyya &Dasgupta, 2014). This powerful technique is used to learn (1) the basic cognitive dimensions consumers use to evaluate "products" in the category being investigated and (2) the relative "positions" of present and potential products with respect to those dimensions (Hauser &Koppelman, 1979). In addition, perceptual maps are often used to investigate positioning issues for new or existing brands (Bhattacharyya &Dasgupta, 2014).

Perceptual maps can have any number of dimensions, but it usually takes two dimensions. To evaluate the responses, the semantic differential rating scale is used, which is a seven-point rating scale with endpoints associated with bipolar labels that have semantic meaning. The scale controls the tendency of some respondents, particularly those with very positive or very negative attitudes, to mark the right- or left-hand sides without reading the labels (Ayaz et al., 2012).

Generally, there are two broad ways of building perceptual maps: compositional and decompositional methods. The decompositional method is a technique where consumers only give their overall preference or ratings, and those overall evaluations are decomposed

into a set of dimensions. The typical decompositional method for developing a perceptual map is Multidimensional Scaling (MDS)(Bhattacharyya &Dasgupta, 2014). In a compositional approach, a set of different attributes is evaluated on the basis of preference or rating, and afterward, the results are combined (composed) together to get an overall evaluation(Bhattacharyya &Dasgupta, 2014).

Perceptual mapping is exploratory in nature and is usually used for getting an insight without testing a hypothesis in statistical terms(Bhattacharyya &Dasgupta, 2014). As consumer behavior in buying a product commonly goes through five stages, such as need identification, information search, developing choice set, purchase, and post-purchase behavior, companies strive to increase the purchase probability of their products. Consequently, knowing how various attributes of products are mapped in the perceptual level of consumers can actually help the marketers in new product development and positioning it accordingly(Bhattacharyya &Dasgupta, 2014).

There are different methods to develop perceptual maps. The difference between similarity scaling and the attribute-based techniques is the consumer task from which the perceptual measures are derived. Attribute ratings are more direct measures of perceptions than similarity judgments but may be incomplete if the set of ratings is not carefully developed. Similarity judgments introduce an intermediate construct (similarity), but the judgments are made with respect to the actual product rather than specific attribute scales (Hauser &Koppelman, 1979).

Factor analysis is based on the correlations across consumers and products, whereas discriminant analysis is limited to dimensions that, on average, distinguish among products. Thus, factor analysis uses more attributes than discriminant analysis in the dimensions and therefore produces richer solutions (Hauser &Koppelman, 1979). According to researchers, factor analysis may be better on predictability, interpretability, and ease of use (Hauser &Koppelman, 1979).

Factor analysis is essentially a data reduction technique in which the objective is to represent the original pool of attributes in terms of a smaller number of underlying dimensions or factors. After the factors have been identified, brands are evaluated on these factors by computing an overall 'factor score', and the brands' ratings on these factors are used to position the brands in perceptual space (Kohli&Leuthesser, 1993).

The discriminant analysis also requires that respondents provide attribute ratings. Similar to factor analysis, an objective of this method is to reduce the number of attributes to a smaller number of underlying dimensions. However, unlike factor analysis, the discriminant analysis focuses on attributes that show differences between brands. In

discriminant analysis, sets of observations represent different 'groups'. In product positioning, the set of ratings for each brand constitutes a group, and discriminant analysis will identify those underlying dimensions that are most useful in discriminating among groups (Kohli&Leuthesser, 1993).

Multidimensional Scaling (MDS) enables market researchers to map objects (i.e., brands) spatially. Accordingly, the relative positions in the mapped space reflect the degree of perceived similarity between the objects: the closer in space, the more similar the brands are. Respondents may either rate (metric scaling) or rank-order (non-metric scaling) the similarity for each pairing of brands and evaluate brands in pairs, judging the overall similarity between the paired brands. Unlike other methods, MDS asks respondents to rate brands on overall similarity, not individual attributes (Kohli&Leuthesser, 1993).

In summary, MDS is preferred when numerous stimuli are available, and only a subset of determinant attributes has been identified. Factor analysis and discriminant analysis can be applied together to emphasize attributes that differ significantly in the degree to which consumers' perceptions vary.

V. CONCLUSION

This paper has highlighted issues that are useful for both marketing researchers and marketing managers. It has shown the importance of branding with respect to different attributes perceived by the customers. It is essential for managers to identify the needs of the customers and develop appropriate product or service positioning strategies to meet such needs. The perceptual mapping method offers to understand customers' perceptions constantly. Besides, it enables to study of the most important attributes associated with the brand, a product, or service. This is especially significant for competitive markets where fast imitation of the products can take place. The companies should try to develop their own niches and focus on the loyalty of the customers. Creating impressions perceptually in the mind of customers can lead to successful operation in competitive markets.

Perceptual mapping as an effective marketing research tool used in new product planning, advertising, product positioning, and other areas of marketing can also be applied for market segmentation, concept development, or evaluation, as well as tracking changes in the marketplace in terms of consumer perceptions. Therefore, strategies based on perceptual maps can enable more stable growth and increased profit.

The appropriate mapping technique should be employed to plot the interrelationships of consumer perceptions between different products, brands, services, or companies correctly. The perceptual mapping method involves two steps: data collection and data analysis and presentation. The data are derived from rating scales where the subjects of the

map are described on the basis of selected attributes. Thus, the validity of the map depends on the overall set of attributes, the subjects of the research, the subset of attributes, and subjects evaluated by the respondents. Theoretically, any subjects that can be rated on a range of attributes can be mapped to show their relative positions in relation both to other subjects and to the evaluative attributes.

Three frequently used perceptual mapping techniques are (1) factor analysis, (2) discriminant analysis, and (3) multidimensional scaling. Among them, factor analysis can be better on predictability, interpretability, and ease of use.

In general, marketers have two broad objectives when performing perceptual mapping: to determine where a target brand is positioned in comparison with the competitors and to identify product attributes that are determinant in influencing customer choice within the product category.

In conclusion, perceptual mapping techniques are very useful to recognize brand and product perception by both existing and potential consumers.

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